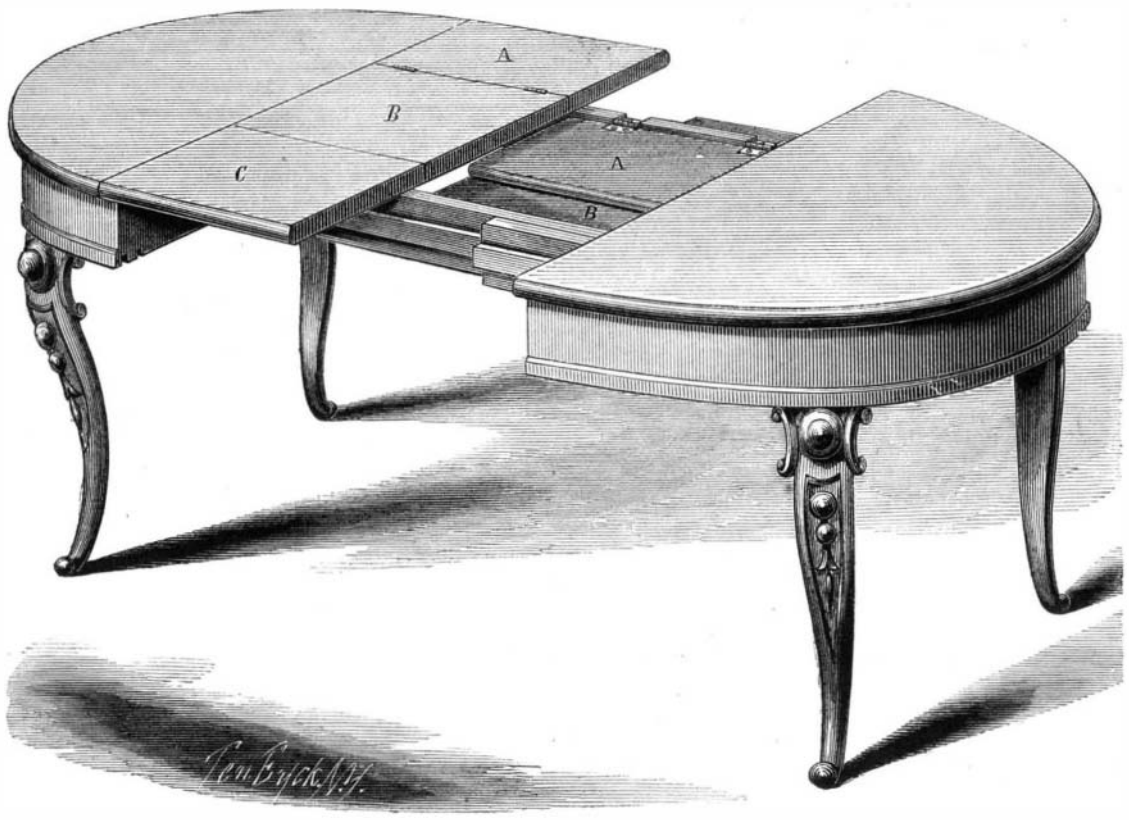
Improvement in Extension Tables.

The dining table now in almost universal use, which may be made to accommodate from four to twelve or more persons, is a great improvement on the old fashioned table, the surface of which could be enlarged only by raising and securing in place hinged outside leaves. But to the modern extension table there are some objections, the lifting and finding a place to deposit the extra leaves when not required for use being quite a serious one. To obviate this difficulty is the principal object of the improved table seen in the engraving. As will be seen, the supplemental leaves are in three sections, hinged together in such a manner that they may be folded one upon the other and shut closely within the body of the table frame. One set is seen open in the engraving, and one set closed. A is the narrow section, being one of the outside leaves; B is the middle and widest section, and C one of the side leaves, folding, when closed, under the middle leaf, B. If greater support to the outer leaves than is afforded by their connection with each other and contact with the frame, is desired, a light bar is adapted to slip into suitable recesses on the outside rim of the table directly under the leaf.

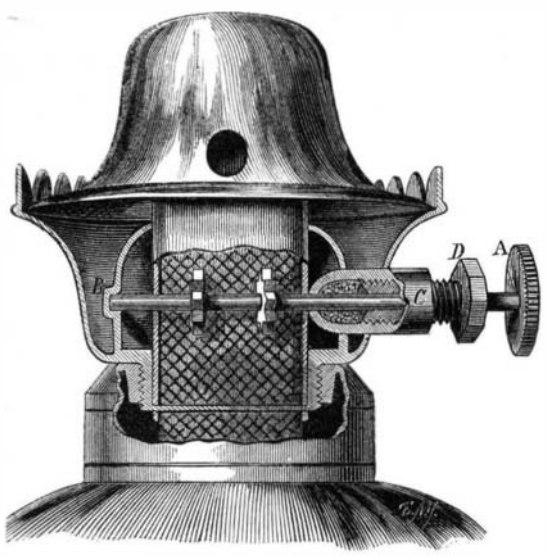
It will be seen that there is no annoyance or labor of lifting out and putting in heavy sections of table top, nor is there so much danger of the leaves splitting and warping as when they are large and movable. The table is essentially a unit, and even when closed to its smallest dimensions can be readily moved about, or used for a center table, and still contains within itself all the elements of an ordinary extension table. It is an invention, we predict, that will come into extensive use. It was patented through the Scientific American Patent Agency, Nov. 6, 1866, by J. B. Curtis, whom address for further information, at Port Henry, N. Y.



J. B. CURTIS' INCLOSED LEAVES EXTENSION TABLE.

GROSVENOR'S IMPROVED NON-EXPLOSIVE LAMP.

The cause of explosions of kerosene and other hydro-carbon lamps is generally believed to be the ignition of hydrogen gas contained in the reservoir between the surface of the liquid and the top inner surface of the lamp. Atmospheric



air or oxygen, being admitted to this space, makes, in combination with the hydrogen, a highly inflammable gas, needing only ignition or a certain degree of temperature to cause an explosion. Now if this gas can be displaced by one which is anti-phlogistic it is evident all danger from this source will be avoided. This, the inventor believes, he has accomplished in this simple improvement.

The engraving shows the details of this device as applied to an ordinary kerosene oil lamp. It is intended to entirely exclude atmospheric air from the interior of the lamp, no orifice but the wick tube—which should be filled by a closely fitting wick—leading from the external atmosphere to the interior of the lamp. All the joints of the burner are made air tight by soldering or brazing. The end of the elevating shaft opposite the thumb piece, A, which ordinarily passes through the side of the burner, is supported in a close socket, B, inside the shell, and the other end passes through a stuffing box, C, containing suitable packing which is set around the shaft by the hollow screw, D.

The inventor says, in brief, that "with this burner, as the vacuum made in the oil reservoir by the consumption of oil cannot be supplied with atmospheric air, it must, necessarily be supplied with nitrogen gas—or any uninflammable gas generated by combustion, as carbonic acid. As oxygen and nitrogen are separated by combustion, and the oxygen is consumed in the process, the liberated nitrogen necessarily descends by atmospheric pressure through the interstices of the wick, in sufficient quantity to supply the gradually extending vacuum, even to the entire exhaustion of the oil, when the reservoir will be filled with this anti-phlogistic gas, in which even a lighted match will not burn for an instant. As there is no orifice for ventilation, evaporation from within is precluded except through the tube to the flame, where it can be profitably used; consequently no oil can gather on the outside of the lamp to soil fingers or clothing or to invite external ignition and consequent internal explosion."

Patented Dec. 10, 1867, by Cyrus P. Grosvenor, who may be addressed at McGrawville, N. Y.

Treating Wood for Covering Walls, etc.

Patented by Abbot R. Davis, of Cambridge, Mass. My invention consists in the employment of glycerin for saturating the thin sheets or laminæ of wood to be used as a wall covering, or for other purposes. whereby the sheets are rendered soft and plastic, and thus prevented from cracking and breaking when exposed to a dry atmosphere before or after being applied to the wall or other surface.

Glycerin and water, in about the proportion of one part of the former to two or three of the latter, are mixed together, the two ingredients readily uniting. The thin sheets of wood above referred to are now saturated with this mixture, and then placed where the water may evaporate therefrom, the glycerin still being retained by the wood and being absorbed by it so as to cause it to remain permanently soft and pliable. The amount of glycerin to be mixed in water may be increased according to the nature and degree of hardness of the wood to be saturated, but I have found the mixture produced by the ingredients in about the proportions first named to answer a good purpose, and glycerin alone may be used without departing from the spirit of my invention. I am aware that glycerin has been employed for saturating sponge to render it elastic for use as a substitute for hair and other material for filling mattresses. The application of glycerin for this purpose I do not, however, claim, but confine myself to the following, viz: the employment of glycerin for saturating thin sheets or laminæ of wood to be used as a wall covering or for other purposes, substantially as described.

Illuminating Gas Mixture.

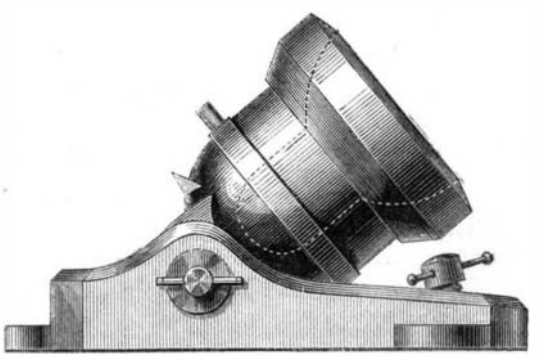
John J. Ensley, of New York city, has patented the following: I make common coal gas in the usual way, and by ordinary means. I also make separately a gas from any convenient vegetable substance or substances, such as wood, shavings, sawdust, etc., and mix the gas with the coal gas in any convenient proportions, according to convenience, or the relative abundance or cheapness of the two gases; or, I make a gas from any animal substance or substances, such as bones, offal, etc., and mix with the coal gas in convenient proportions say, of one part of the gas from animal substance to three parts of coal gas, or otherwise; or, I mix the gases, made both from vegetable and animal substances with the coal gas, in convenient proportions, no exact proportion of either being essential.

The object of this mixture of gases is threefold: first, by the mixture of different gases in this way, especially by the ad mixture of gas from animal substances with coal gas, I am more sure to produce good illuminating gas, by furnishing proper proportions of carbon and hydrogen; second, in the separate manufacture of gases made from vegetable and animal substances, I produce and utilize other products of the distillation, such as charcoal and bone black; and third, in many instances, by having an abundance of vegetable or animal substances, or both, at hand, and not otherwise of value, I can make use of them and thereby cheapen the manufacture of gas for illumination.

Mountain Mortars.

After all has been done to reduce the weight of mountain mortars to a minimum, it remains a fact that they are not portable in the highest degree, and it is not to be denied that in the endeavor to secure such portability as they possess much of their efficiency has been sacrificed. We believe that as a consequence of the existing prejudice against mortars a very valuable weapon has not been supplied to our Abyssinian troops, and, as none of the essentially military papers have called attention to the subject, we do so. About twenty-four years ago we carried on a war against certain of the aboriginal New Zealand tribes and a very troublesome, and, in its way, expensive little war it proved to be. At that time we had no rifled mountain guns, but we had little howitzers, intended to answer much the same purpose, and probably not much less efficient. These howitzers, however, proved to be next to useless. The natives entrenched themselves within pahs, from whence they could not be dislodged, and into which our troops could not get without great loss of life. The pah consisted of spaces inclosed by walls made of piles driven in two rows about four feet asunder, the space between being filled with clay after the manner of a coffer dam. The little howitzers in some cases could not be brought up to act against these pahs at all, and in others they could not breach the walls. "Toney Heckey," a native chief, constructed one of these pahs on the top of a hill, from which he could not be dislodged. In this emergency, Capt. G. R. Mann, R.E., proceeded to Sydney, and from his designs twelve little mortars, as illustrated in the accompanying engraving, were made by Mr. Russell, of Sydney.

Our engraving, for which, with this description, we are indebted to *The Engineer*, prepared from the original tracing made twenty-four years ago, illustrates their construction so clearly that no special description is necessary. The cast-iron base weighed but twenty-eight pounds, and was fixed to a piece of two-inch plank 24 by 16. The mortar, of gun metal, weighed only 65 pounds, and was, of course, still more portable. The charge consisted of 8 ounces of powder and a common 5-inch shell. It may be thought that as there was no length of chase, only half the shell being contained in the mortar, the range would have been very small. In point of fact, however, the range was 550 yards, quite sufficient for the required purpose. These little mortars were carried up



by a few men within a few hundred feet of the pah to be attacked, and pitched their shells with ease into the very heart of the camp. They proved perfectly effectual, and infinitely more useful than the small guns, not only in attacking pahs, but in dislodging the enemy from jungle, as they could be put down at a moment's notice, and used while troops were on the march. They certainly exceed in power any other weapon of equal weight, for a 5-inch shell, weighing some 12 or 14 pounds, and containing a heavy bursting charge, is no contemptible foe. The remarkable range of these little mortars is an excellent illustration of Lynall Thomas' theory of the percussive action of exploding gunpowder, and it is possible that with gun cotton the range would be still greater. Judging by the good service they have done, we cannot resist the conclusion that a few such mortars would prove a useful addition to our Abyssinian armaments.—*Mechanics' Magazine*

CHASSEPOT WOUNDS.—It appears from the testimony of surgeons who participated in the last Garibaldian campaign, that while a large number of troops are put *hors de combat* from the multitude of missiles which this fire-arm can scatter over the battle-field, yet by reason of the small size of the projectile, the number of fatal injuries is very small in proportion to the total number of wounded. It has also been ascertained that the Chassepot bullet rarely shatters a bone, but in the large majority of cases passes around it.