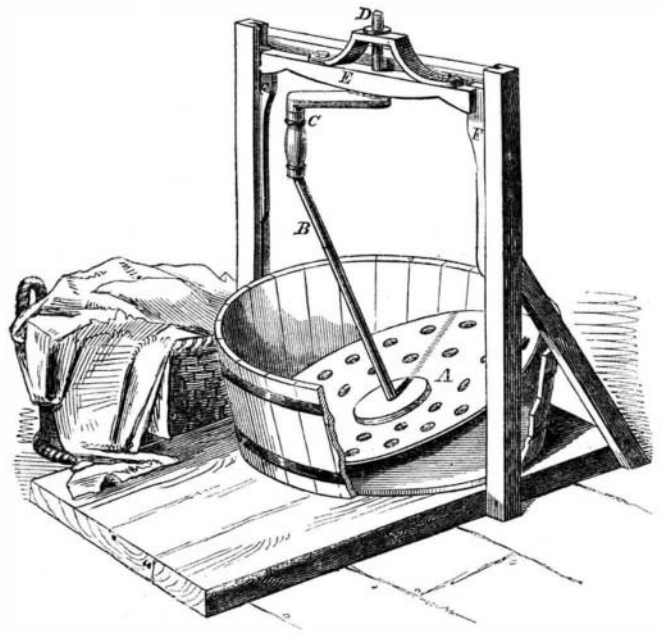
IMPROVED CLOTHES-WASHING MACHINE.

Perhaps some of our readers may have supposed, twenty years ago, that all possible improvements in washing machines had been made, and we ourselves are very apt to feel as if each one that we described must finally be the last of the series. But "the end is not yet," and the amount of labor expended weekly in washing clothes is so enormous that a great deal of thought is devoted in the effort to economize it, and we doubt if even the machine which is here illustrated will be the very last washing machine ever invented in the United States. We think that our inventors are now on the right track, and that this machine, like the last one which was illustrated in our columns—the great Shaker steam machine, which has been so extensively introduced and works so well—operates on the correct principle for effectual washing.

The circular perforated plate, A, is fastened to a shaft B, which is hung in ball-and-socket joints at both ends, the lower end in the center of the bottom of the tub and the upper end in the handle of the crank, C. The shaft of this crank has its bearings in a cross-bar, E, which is secured to the slides, F F, so that the crank may rise and fall vertically. The clothes are placed in the tub under the plate, A, when, by revolving the crank, C, they are alternately subjected to pressure and released from it, thus being repeatedly saturated with water and having the water pressed out of them without rubbing; this is the mode which we have long regarded as the true one for washing clothes.



PATTERSON & RAMSEY'S CLOTHES-WASHER.

A patent for this invention was issued, through the Scientific American Patent Agency, on August 21, 1860, and further information in relation to it may be obtained by addressing the inventors, N. A. Patterson and W. L. Ramsey, at Kingston, Tenn.

NEW PROCESS OF REFINING SUGAR.

We translate the following article from *Le Génie Industriel:*—

Messrs. Périer and Possoz—in view of the fact that the brown sugars of commerce generally contain calcium combinations, and always coloring matters, which lime methodically employed renders precipitable by carbonic acid—have been led by a series of experiment, to the following manipulation, which gives excellent results, and for which they have secured a patent in Belgium.

They commence by dissolving the sugar in a quantity of water, variable according to the quantity of sugar to be refined and the mode of filtration adopted. A quantity of slacked and diluted lime is added to this brown sirup, the proportion varying with the impurity of the sugar, from 5 to 10 lbs. of quick lime to 100 lbs. of sugar. This mixture is then carbonized either cold or warm; though the inventors prefer that it should have a temperature of from 100 to 140 degrees. The carbonization is continued until the calcareous precipitate separates from the liquid in the form of clots. At this phase of the operation, litmus paper strongly reddened is restored to the blue color by the lime in solution in the sirup; and at this moment the mixture is filtered or separated from the calcareous deposit by any known means.

The sirup, deprived of this calcareous deposit is already well purified, and this treatment may be finished either by pushing the carbonization further, or by carbonizing completely the sirup deprived of its first colored deposit. But as, ordinarily, at this first carbonization, the sirup is not sufficiently deprived of its soluble matters, there is added to it another dose of lime, feebler than the first, in the proportion of two or three per cent of lime to the sugar. This second addition of lime is carbonized completely, that is to say, until some filtered drops of this sirup form no precipitate with oxalic acid, or even until limped lime water is rendered turbid by some drops of this filtered sirup, which denotes an excess of carbonic acid in the sirup, and consequently the saturation of all the lime which it contains. In this latter case it is necessary to subject the sirup to ebulition before filtering it, in order to precipitate the carbonate of lime held in solution by the excess of carbonic acid.

The carbonic acid which Messrs. Périer and Possoz prefer to employ for this refining operation is taken from the furnaces of the sugar-house or other furnaces; it being one of the principal products of combustion. Before passing this gas into the sirup, it is partly cooled by washing it with care so that it will not soil the sugar in the least degree. This gas is easily obtained by drawing out the products of combusion at their entrance into the chimney, with a pump, at the same time using their caloric to heat either air or water; so that the carbonic acid not only costs nothing, but there is obtained from it an enormous quantity of heat which is ordinarly lost.

The second calcareous deposit is separated from the sirup by repose, filtration, centrifugal force or any other known means, and the sirup is concentrated to the ordinary point. The less dense the sirup when first made, the more easily will the deposit be separated.

IMPROVED LAMP.

From the beginning of creation, *light* has been deemed of primary importance by the sentient beings of the universe The study of its complex character has engaged the attention of the very greatest intellects that the world has ever known; to obtain the material for its artificial production, men have explored all seas and braved the rigors of every climate; and the perfect consumption of this material seems to be an inexhaustable field for experiment and contrivance by the highest class of intellect among inventors.

Fig. 1

Fig. 2

Fig. 3

In the lamp which we here illustrate the flame is made in the form of a cross, in order to expose a large surface to the air and thus insure a perfect combustion of the oil. The wick is made of stout cotton flannel in four strips, each about three-quarters of an inch in width, and the wick tubes, *a a a a*, are made of proper dimensions to receive the wicks, and of the cross-shaped form shown in Fig. 2. No chimney is required, and the lamp burns perfectly in a still room without any globe. Cotton seed, lard, coal, and other heavy oils are used, and the lamp is adapted to them. One great advantage of this lamp is its perfectly simplicity; there are no screws, loose tubes or other complicated parts, requiring the care of a skillful mechanic to keep it in order, but the stupidest negro in the country can take care of it.

The patent for this invention was granted Feb. 14, 1860, and further information in relation to it may be obtained by addressing the inventor, Sheldon Guthrie, at New Orleans, La.

THE CAUSE OF THE FAILURE OF THE ATLANTIC TELEGRAPH.

The insulating of submarine telegraph cables with india-rubber instead of gutta-percha is attracting a great deal of attention in England. Several papers on the subject have been read before the British Association for the Advancement of Science, by some of the ablest and most experienced electricians in the kingdom, and it seems to be the general opinion that gutta-percha is absolutely worthless for this purpose, while india-rubber, from experiments extending over 20 years, promises to answer every requirement. India-rubber, besides its manifest superiority in other respects, is a far better insulator than gutta-percha; though the opposite opinion has been widely disseminated. The Atlantic cable, besides the use of gutta-percha as an insulating agent, had also another fatal defect, the spiral form of the external wires. This form permitted the external coating to stretch under a strain, and this almost completely destroyed its value for the purpose for which it was intended. The great blunder in the conduct of the Atlantic telegraph enterprise was the childish haste with which it was hurried through; not permitting a proper test of the various new plans required in the novel scheme. This blunder will now be avoided, and it is probable that the next effort will be successful.