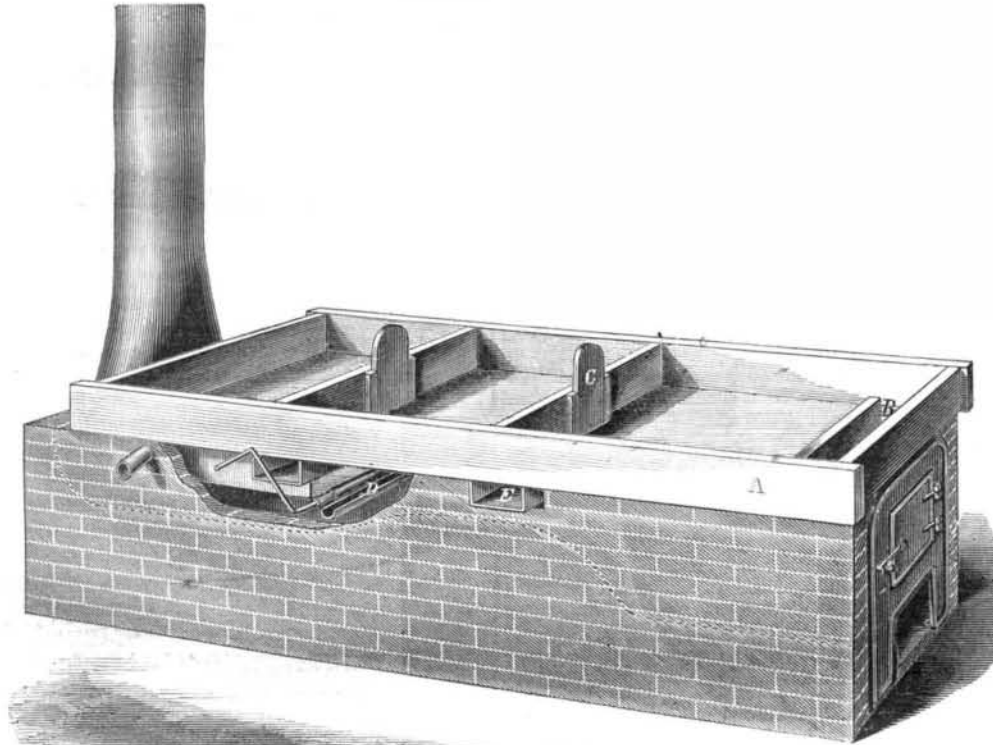


Improved Sorghum Evaporator.

This engraving represents a new evaporator for making sugar from the juice of the sorghum cane. It is conveniently arranged for the purpose, and is designed to improve the quality of the sugar by facilitating the removal of the scum and preventing the liability of scorching at the final boiling off.

In the engraving, A represents a flat pan divided into three parts. At first the juice is poured in at B, from whence it emerges into the larger partition where it is skimmed, and then allowed to pass successively into the two other compartments through the gates, C, as in all other evaporators. When it comes into the final compartment, there is a damper,



SKINNER'S SORGHUM EVAPORATOR.

D, provided, which shuts off the more intense heat from the pan and allows heated air only to come under it.

There are cold air ducts, E, beneath the pan which tend to check the ebullition at those points, and enable the scum to gather there so that it can be removed before the gates are opened.

This pan is perfectly smooth inside, and can be easily cleaned, in the common way, of all gummy matter, and it is also readily worked on a common arch, saving time and expense of setting many flues and having many dampers.

A patent was procured on it through the Scientific American Patent Agency on October 10, 1865, by E. W. Skinner. Address E. W. Skinner & Co., Mendota Agricultural Works, Madison, Wis., for further information.

Electricity in Deep Sea Sounding.

In deep sea sounding the greatest difficulty is felt, even by experienced persons, in ascertaining the precise moment at which the lead of the sounding line touches the bottom—a matter on which the whole value of the sounding depends. An apparatus invented in France, at Lyons, removes, it is said, every difficulty on the point. The sounding line contains within it, along its whole length, two insulated conducting wires, the upper ends of which are connected respectively with the poles of a galvanic battery in the ship. The lead is in two parts, the lower one of which is partly inserted into the upper, and is capable of a limited vertical motion within that of the other, so that, when left to hang freely, a small empty space is left within the upper portion by the spontaneous descent for a short distance of the lower portion. To the upper end of the lower portion, and within the upper portion, is attached a commutator, which is contained in an insulating and water-proof sheath, and which, when the lower portion of the weight is raised by contact with the ground, comes in contact with the ends of the conducting wires, so as to complete the circuit. Instantly, by means of the ordinary electro-magnetic apparatus, a bell is

rung on board the ship to attract the attention of the sounder, and a ratchet is thrown into action, which arrests the unwinding of the line from the drum on which it is coiled so that no more can run out. This apparatus is applicable also when the lead is kept hanging down at a certain distance from the ship, of indicating the presence of rocks or reefs, or that the water has become shallow, so as to give timely notice of approaching danger.

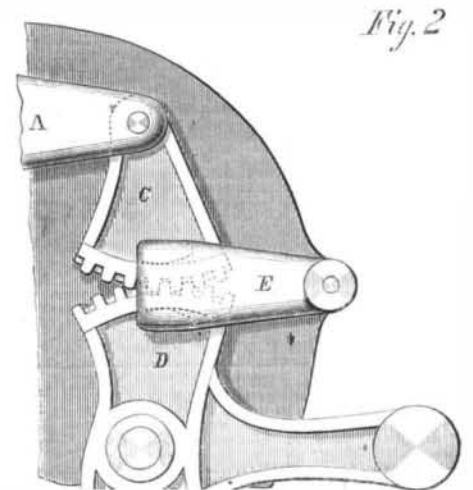
STILES'S FOOT PRESS.

A great many manufacturers use small presses for cutting out sheet-metal work, and are thus enabled to

water is not employed. Any kind of die can be inserted in the bed and slide, and great power is obtained by the mechanical agents employed. These are shown in Fig. 2.

The lever, A, which works the slide, B, in Fig. 1, has a toothed quadrant, C, jointed to it which is longer from one corner than from the other. That is to say, the teeth are not formed on a circle swept from the center it works on, but from a point independent of it.

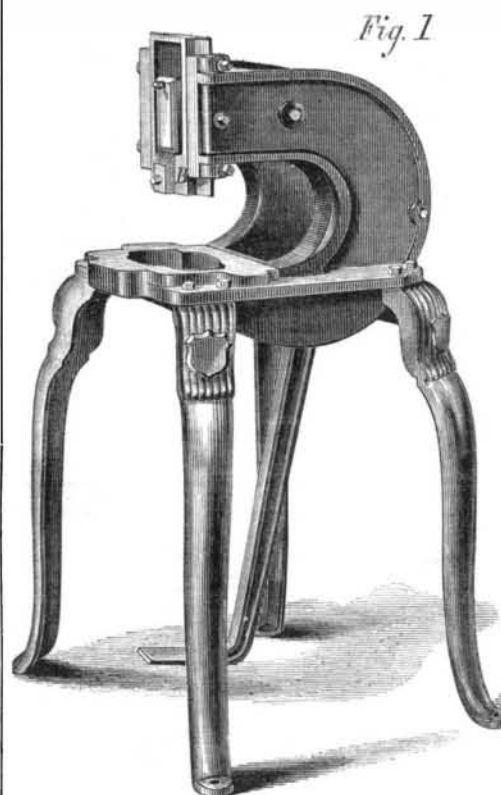
The other quadrant, D, is similarly constructed. On each is a flange at the pitch lines of the teeth, so that the latter merely act as so many projections to compel the quadrants to roll together. The teeth are kept in gear by a clamp, E, jointed to the frame—which is free to accommodate itself to the motion



of the quadrants. The result of this arrangement will be a vertical movement of the upper quadrant equal to twice the difference in length of the sides of one of the quadrants. This, of course, is communicated to the slide, B, through the lever, A. The action is equivalent to that of the toggle joint which is capable of transmitting great power. The quadrants before mentioned are worked by the foot of the operator pressing on the treadle, below the table. The machine is strongly made and handsomely finished.

For further information address N. C. Stiles & Co., press makers, West Meriden, Conn.

employ cheap labor and produce goods themselves which they would otherwise be obliged to purchase. This applies particularly to hoop-skirt fastenings, mountings for the new wooden pipes which have lately been introduced, pocketbook fittings, album ornaments, and a variety of other things not necessary to enumerate.



For such purposes the press here illustrated will be found extremely useful. It is operated by foot power, and can therefore be used where steam or



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