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New Agricultural Products.

Our Patent Office has accomplished an incalculable amount of good in the agricultural as well as the mechanical department, especially in the introduction of new and useful seeds of foreign origin, capable of profitable cultivation in our country. The Chinese sugar-cane has now become one of our most valuable crops; sugar-cane cuttings imported from the West Indies have resuscitated the decayed sugar plantations of Louisiana; barley from Tuscany and wheat from Turkey have been cultivated with success, and have taken the place of inferior varieties. A great number of other grains and seeds have also been successfully introduced through the Patent Office, and distributed over every section of the country. The person who makes two blades of grass grow where only one flourished before, is held to be a benefactor; and when this is taken as a standard, our Patent Office should be considered one of the most beneficent institutions in our country.

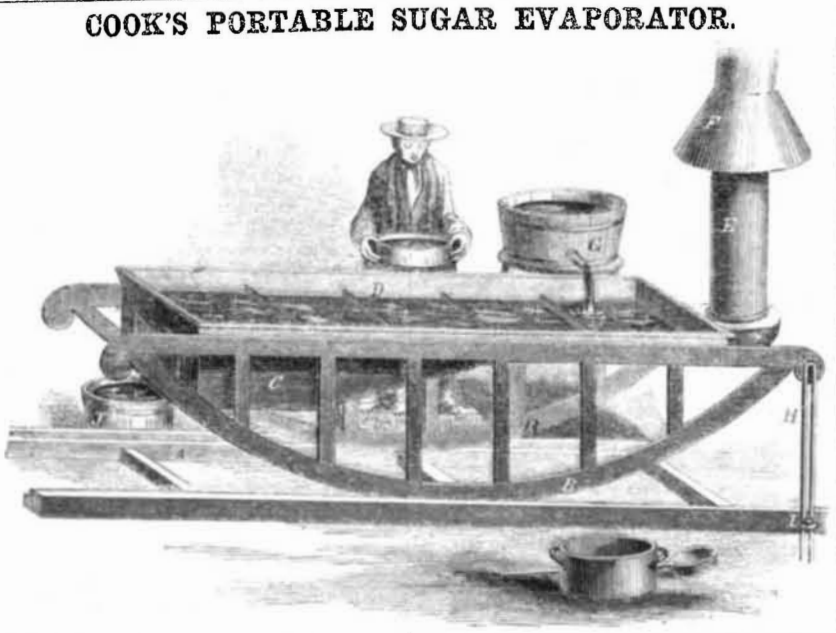
We conceive it to be a positive benefit to cultivate a very great variety of useful crops. In countries which are devoted to the raising of a very limited number, there is great danger of famines, such as in Ireland, where the potato was the chief food of the people, which esculent was blighted in 1846, and was followed by a great famine. Although many new seeds have been introduced from other countries, there are still several others equally deserving the attention of those in authority.

In the East Indies there is a number of cereals and pulses which are exceedingly nutritious, and deserving of introduction; one of these, called Boot (the *soja hispada*), contains 46 pounds of nitrogenous matter in every hundred cwt.; 12½ pounds of oil, 13 ounces of phosphorus, and 1¼ ounces of sulphur. To the vegetable-eating Brahmins, some pulses are what beef and other flesh meats are to us. They mix about one fifth of some liguminous seed—such as *Cajanus Indicus*, their favorite—with rice, and grow as fat and oily on the regimen as beef-eating Caffres. We have introduced the Chinese sugar-cane, and the yam from the East; but in Hindostan there are a vast number of peculiar, useful vegetable productions, which no doubt can be cultivated in some sections of our country.

Consumption.

A physician of the homeopathic school has furnished us with the following recipe for the weakening night sweats that are so common in consumptive cases. It is to rub the patient, every three or four days, all over with olive oil. By this means the perspiration will be reduced, and the strength of the sufferer be kept up.

COOK'S PORTABLE SUGAR EVAPORATOR.



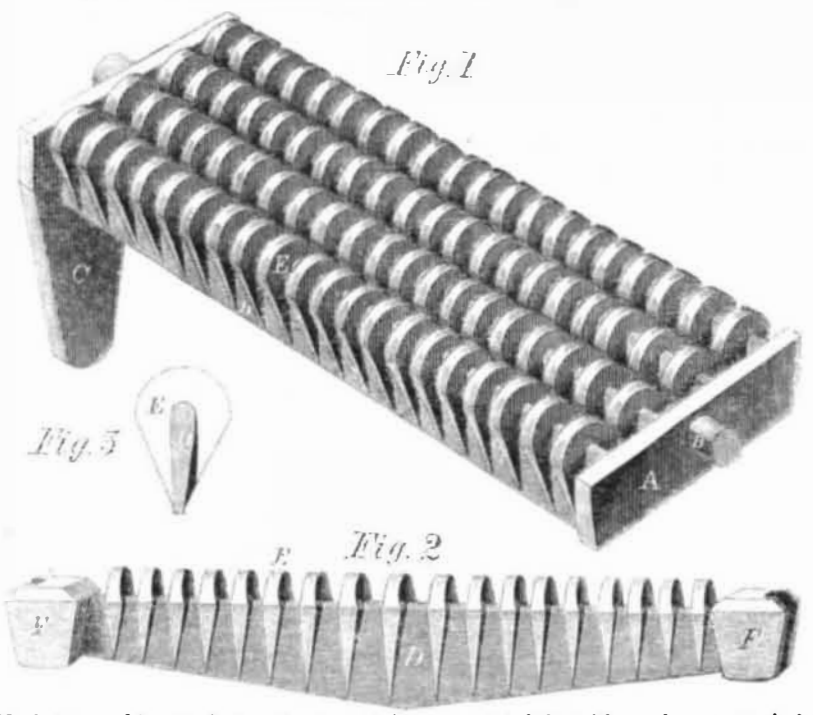
The principal purpose or which this invention is designed is to make refined sugar direct from ripe China cane, and be so portable, cheap, and convenient, that every farmer can possess one if he wishes, and refine his own sugar from cane of his own growth. Our illustration is a perspective view of the arrangement, showing the evaporator in operation.

Guides, A, are laid on the floor; these are made like grooved rails, and are intended to preserve the position of the evaporator while it is being rocked or inclined. Two rockers, B, formed of malleable or cast iron riveted together when cold (hoop iron being strong enough), supports the fire chamber, C, and evaporator, D. The door of the fire chamber, C′, is seen in the front. The evaporator or pan is made of light protected copper or other metal sheathing crimped into flanges or spaces, so as to form a continuous transverse channel one inch and a-half deep and five inches wide. The chimney, E, carries off the smoke, and draws the fire under the evaporator, and the steam is carried away by a hood, F, communicating with the roof of the building.

The sirup from the mill is poured into the tub or reservoir, G, from which it runs into the top end of the evaporator, and the frame and rocker being secured at the desired angle to ensure the best evaporation by a rubber, H, and set to-and, I, the juice runs down the grooves; and as it is running, it must be skimmed by a skimmer that fits between the sides of the evaporator, D, and the pure sirup runs off into a receptacle, J, at the lower end. The firing, skimming, and grinding must go on steadily together, and a constant stream of pure sirup will be the result.

The inventor is D. M. Cook, of Mansfield, Ohio, and he obtained a patent June 22, 1858. Any further information concerning details of construction, price, sizes, and their capacity for work, can be obtained by addressing the inventor as above.

SAVAGE'S SELF-CLEANING GRATE BAR.



Much time and heat is lost while the ordinary furnace bars are being cleaned and the clinkers removed by the common fire-rake or poker; and the grate bars themselves are so constructed that either only comparatively large coal can be employed, or the atmospheric surface is so small that it is impossible to attain anything like perfect combustion.

To provide a grate bar that is self-cleaning, a larger coal surface and greater air surface, S. T. Savage, of Albany, N. Y., has invented the subject of our engravings. Fig. 1 shows a segment of a grate for a locomotive, consisting of four bars; as many of these may be put together as the width of the fire-box permits. The bars, D, are cast with end pieces, A, which are provided with bearings, B, on which they can turn, and these bearings fit into corresponding recesses in the fire-box, so that the grate segments can be entirely upset by moving the projection, C, by a lever; all the projections, C, being connected by links. The grate bar, D, is cast thin, with a series of arched projections, E, upon it; these spring from the bottom of the bar at an angle to nearly a level with the top of the grate bar, this point being also the widest part of E, and from this the arch is formed that gives a curved surface to the coal, and keeps the coal up from the main bar, doing away with the flat surface on which the coal lies dead on an ordinary bar, so that a free circulation of oxygen is secured through the fuel. It cleanses itself of ashes as fast as they accumulate, having no surface for them to collect upon, while the clinkers (should there be any) can be removed by capsizing.

Fig. 2 shows a bar suitable for any kind of grate, constructed on the same principle, only cast singly, with boxes, F, at the end, to rest in the fire box. The boxes are cast hollow, and air can find its way in them, to keep the ends cool, and also feed the extreme back and front of the furnace. Fig. 3 is a vertical cross section of this bar, illustrating the relation between the arch, E, and the main bar, D.

A great saving of metal, in comparison with the strength and durability, is effected, and as the draft is sufficient, the heat is continually carried up among the fresh coal, and the distribution of the air passages are so diffuse that the bars are kept comparatively cool. Wherever a furnace or large fire is required, these bars are the very thing; for boilers or melting furnaces they are equally applicable.

They were patented November 23, 1858; and any further particulars can be obtained from the inventor or the manufacturers, Messrs. Treadwell, Perry & Norton, No. 110 Beaver st., Albany, N. Y.

Ventilating Waterproof Cloth.

The Paris *Moniteur Industriel* states that 20,000 tunics, rendered waterproof and yet porous, were served out to the French army during the late war with Russia. They were prepared in the following manner:—Take 2 lbs., 4 oz. of alum and dissolve it in ten gallons of water; in like manner dissolve the same quantity of sugar of lead in a similar quantity of water, and mix the two together. They form a precipitate of the sulphate of lead. The clear liquor is now withdrawn, and the cloth immersed for one hour in the solution, when it is taken out, dried in the shade, washed in clean water and dried again. This preparation enables the cloth to repel moisture like the feathers of a duck's back, and yet allows the perspiration to pass somewhat freely through it, which is not the case with gutta-percha or india-rubber cloth. The method of thus preparing cloth is not altogether new, but such cloth being employed by the French army is some evidence of its utility.