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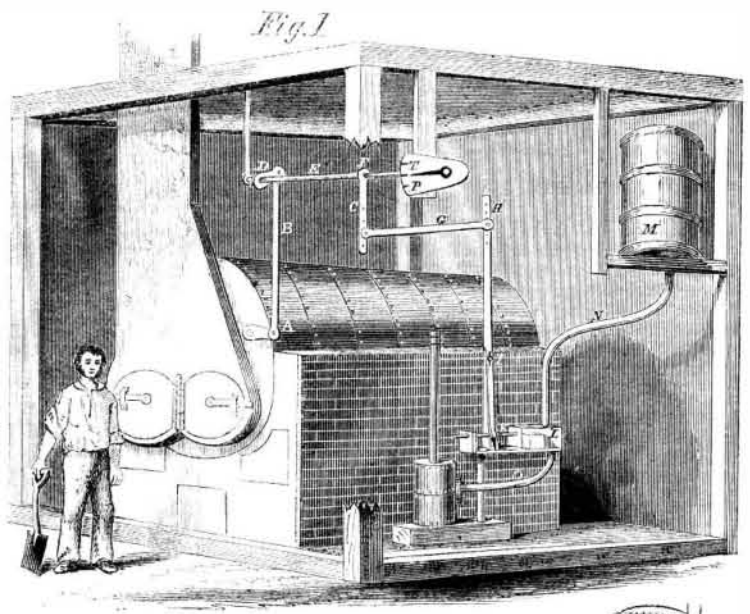
Salmon Cultivation.

There are some persons, who, if they were to find a canary flying in our woods, would immediately conclude it was a native of our forests, and that all who had asserted it to be of African origin were in error, This seems to be the system of reasoning pursued by our cotemporary, the Pittsburgh *Dispatch*, in regard to salmon. It asserts that the opinion which has heretofore prevailed regarding salmon requiring periodical visits to the sea is erroneous. It says "we presume that those (salmon) propagated in the lakes know as little of salt water as an inland farmer's boy." No fact has been more clearly demonstrated than that the salmon in our lakes make and require periodic excursions to the sea. Salmon is indeed a salt-water fish, and only comes to fresh-water rivers for the purpose of spawning. At one period they swarmed in Oneida lake and Fish creek (in New York), where not one has been found for a number of years. If they had propagated and remained in these waters according to the Pittsburgh *Dispatch*, they would be found there still. The reason why they are never found there now is owing to a barrier erected at Oswego in the form of a dam, which prevents their annual salt and fresh water excursions. As our cotemporary has referred to the SCIENTIFIC AMERICAN as having taught erroneous doctrines on this subject, we must say that our opinions are formed upon practical experience, not vague theory.

It has been proposed that a bye-wash should be built at every dam on our rivers and creeks once frequented by salmon, for the purpose of allowing them to pass up to old spawning grounds. With the artificial cultivation of young salmon, as has been successfully practiced of late years in France and Great Britain, and dams formed with shutes up which the salmon might run to spawn, we have no doubt but the Merrimac, Connecticut and Hudson rivers would once more abound with these delicious fish. This is a subject which deserves wide spread attention, and as summer is at hand, we present these thoughts for the purpose principally of having them acted upon in their proper season.

SALT.—The application of two to four hundred pounds of salt to the acre has been found to be of great advantage in promoting the growth of all plants and trees. Warm soils of the inland districts, and especially those that have been dressed liberally with animal manure, are the most benefited. A dressing of salt upon a grass lawn will often increase growth and thicken-up the plants far more than a coating of animal manure.

COLMAN'S BOILER WATER REGULATOR.



There is little doubt that a great number of the explosions which take place upon our western river steamboats, are caused by an inefficient supply of water to the boilers, and the boiler becoming red-hot, a great quantity of water is thrown into the spheroidal state, and the moment the boiler cools, either from the fire lowering or the introduction of fresh fuel, the water bursts into steam and causes the horrible accidents that are so often detailed in the newspapers.

The subject of our illustration is a device invented by J. L. Colman, of Vincennes, Ind., for preventing such catastrophes, and is seen in Fig. 1, in perspective, applied to a boiler. Fig. 2 is a plan of the boiler showing the float, and Fig. 3 is an end view of the boiler, with part removed for the same purpose. On the float arbor, *a*, outside the boiler is a crank, A, which can be placed either in the front, or at the side of the boiler, to which the float, *c*, is connected by an arm, *b*. The pitman, B, extends from A to a crank, D, on a rocker shaft, E, to which, at a point, F, the rod, C, is attached. A link, G, is connected with C and the lever, H, which vibrates in the oblong hole, I. The lower end of H is forked, and has the pin, K, of a piston of the slide valve of a water chest, L, in the fork, so that any variation in the level of the water is immediately caused to open the slide valve correspondingly; thus, if the water be fallen very low, then the slide valve is opened wide; if the water only falls a little, then the slide valve is only opened to admit a small quantity of water, so that the boiler is always kept properly full by this automatic arrangement. The cistern, M, should be kept full of water, and the water flows from it through a pipe, N, to the slide valve, L, and from that by a pipe, O, to a heater. On the end of E is a pointer which indicates, on a dial or segment, marked T P, the position of the water in the boiler, any deviation from the straight line showing that either too much or too little water was in the boiler. If the force pump be in order and the cistern be always kept full, there can be little danger of an accident to a boiler which is supplied with one of these regulators. It should be borne in mind that the float should always be placed between the flues, so that it will not be likely to rest on either of them but will always float on the water.

This valuable invention, which has given every satisfaction where it has been applied, was patented March 15, 1859, and the inventor will be happy to furnish any further information upon being addressed as above.

Cutting Sugar Cane—Bagasse Furnaces.

A correspondent residing at St. James, La., recently directed our attention to the subject of improved plantation implements, and suggested that a machine for cutting sugar-cane in the field would be an important and useful invention; and he also stated that a furnace for using the expressed cane for fuel was much wanted. In answer to these propositions as presented on page 204 of the present volume of the SCIENTIFIC AMERICAN, Mr. Evan Skelly, of Plaquemine, Parish of Iberville, La., an intelligent and experienced plantation engineer, assures us that a machine for cutting sugar-cane in the field is impracticable. He has for the past fifteen years been an attentive observer of all things connected with planters' interests, and he visits various parts of Lousiana every year so that his means of obtaining correct information on the subject are extensive and varied. He has never seen sugar-cane standing erect in the field, but always lying "helter-skelter" across the rows, twisted and bent up in every fantastic form. The cane stalks vary greatly in height; and as each has to be cut at a particular joint, no machine can be constructed to make such distinctions in cutting them.

Our St. James correspondent suggested an improvement in furnaces to evaporate a hogshead of sugar with *one* cord of wood, instead of four or five as now used. Mr. Skelly states that such a proposition is preposterous. The sugar-cane of Louisiana contains only six per cent of saccharine matter in the juice, and a hogshead contains 1,100 lbs. of sugar; therefore, no less than 17,200 lbs. of liquid must be evaporated to produce this quantity. As a cord of wood can only evaporate 8,160 lbs. of liquid (according to Haswell), it follows that, with a furnace perfect in every sense, more than two cords of wood are necessary to the evaporation of 1,100 lbs. of sugar.

In 1858 Mr. Skelly secured a patent for a furnace for burning the bagasse (crushed cane) as fuel, and it seems to have been very successful. In the evaporation of eleven hogsheads of sugar only one and a half cords of wood are used with the bagasse, and with this evaporation steam is also furnished for grinding the cane, clarifying, granulating, and the pumping engine. This result is strong evidence in favor of the efficiency of this furnace, which was illustrated and described on page 308 of Vol. XIII. of the SCIENTIFIC AMERICAN.

Nutritive Qualities of the Onion.

The onion deserves notice as an article of great consumption in this country, and it rises in importance when we consider that in some countries, like Spain and Portugal, it forms one of the common and universal supports of life. It is interesting, therefore, to know that, in addition to the peculiar flavor which first recommends it, the onion is remarkably nutritious. According to analysis, the dried onion root contains from twenty-five to thirty per cent of gluten. It ranks, in this respect, with the nutritious pea and the grain of the East. It is not merely as a relish, therefore, that the wayfaring Spaniard eats his onion with his humble crust of bread, as he sits by the refreshing spring; it is because experience has long proved that, like the cheese of the English laborer, it helps to sustain his strength also, and adds—beyond what its bulk would suggest—to the amount of nourishment which his simple meal supplies.

Utilizing Steel Grindings.

In reducing steel tools, such as saws, &c., on grindstones, the detritus is esteemed of so little value as to be allowed to pass away as waste. In Sheffield, England, where so many steel tools are manufactured, attention has lately been directed to utilize this waste, and with some success. It contains about fifty per cent of metal, and the rest of sand grit. By washing, the sand is carried off, and the metal being heavier, it settles to the bottom of the vessel and is saved. After this it is smelted in a crucible and run into ingots, and is found to pay handsomely for the trouble thus bestowed on it.

Tomatoes.

The following method of preparing tomatoes for the table, we are assured by one who has made the experiment, is superior to anything yet discovered for the preparation of that excellent vegetable:—

Take good ripe tomatoes, cut them in slices, and sprinkle over them finely pulverized white sugar, then add claret wine sufficient to cover them. Tomatoes are sometimes prepared in this way with diluted vinegar, but the claret wine imparts to them a richer and more pleasant flavor, more nearly resembling the strawberry than anything else.