(No Model.)

N. S. BEARDSLEE.

SALT GRAINER.

No. 430,332. Patented June 17, 1890.

FIG. 1.

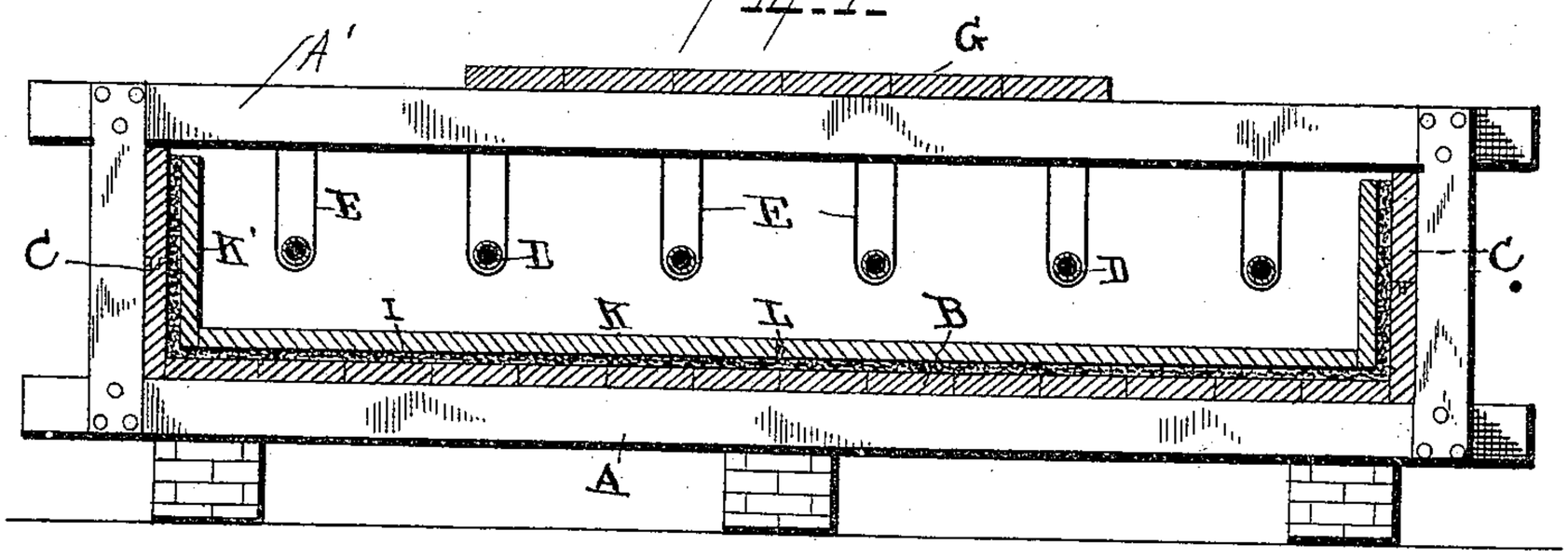


FIG. 2.

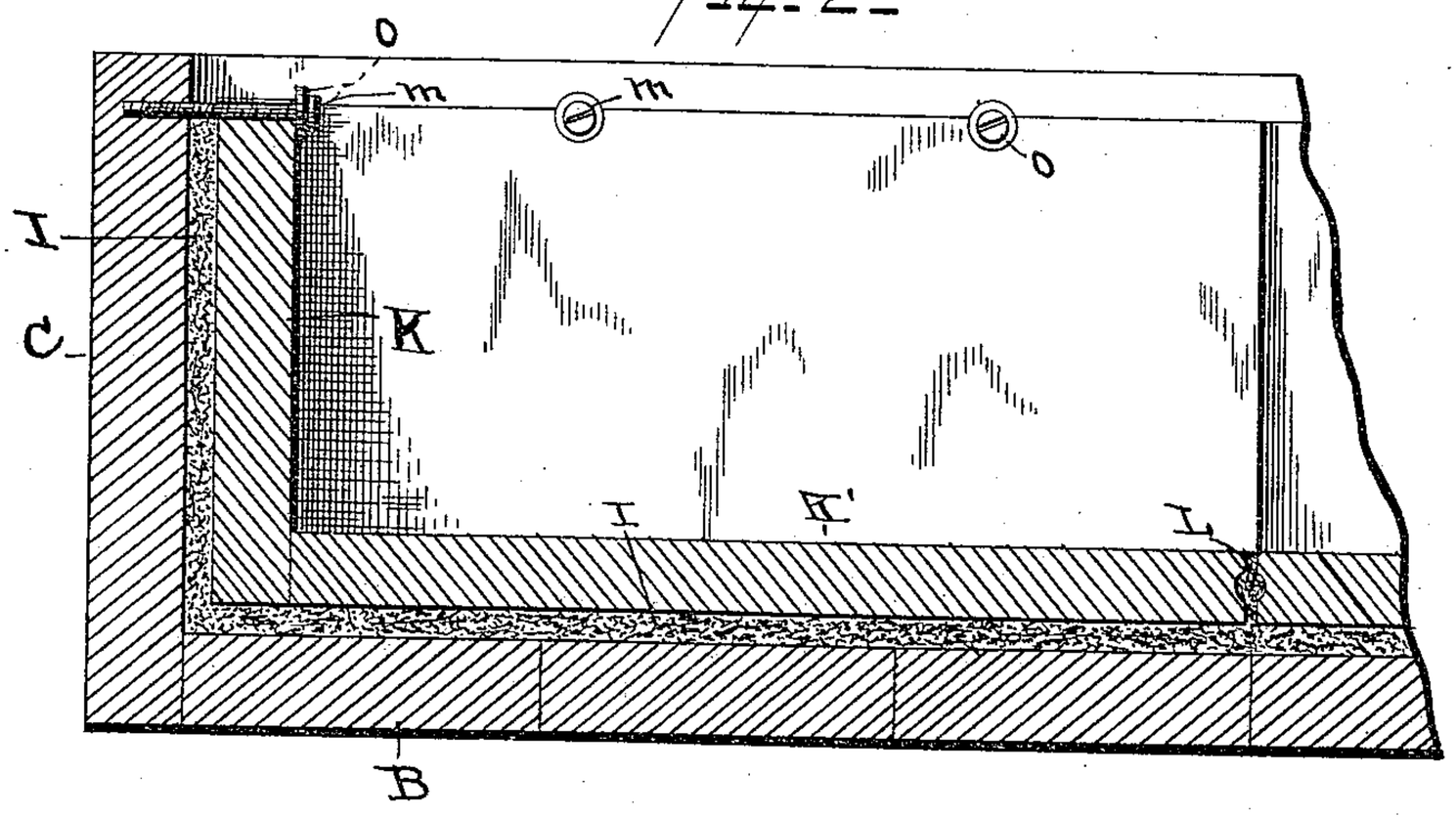
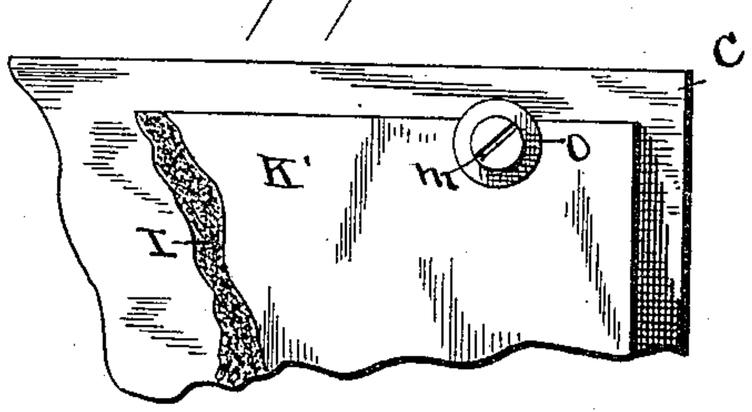


FIG. 3.



Witnesses
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UNITED STATES PATENT OFFICE.

NATHAN S. BEARDSLEE, OF WARSAW, NEW YORK.

SALT-GRAINER.

SPECIFICATION forming part of Letters Patent No. 430,332, dated June 17, 1890.

Application filed February 28, 1889. Serial No. 301,450. (No model.)

To all whom it may concern:

Be it known that I, NATHAN S. BEARDSLEE, residing at Warsaw, in the county of Wyoming and State of New York, have invented certain new and useful Improvements in Salt-Grainers, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to grainers for salt-making, and is specially intended to make a grainer which shall be durable, and in which pure salt may be produced without deterioration.

The invention consists in the construction and combination of parts constituting the device.

Figure 1 is a cross-section of a grainer. Fig. 2 is an enlarged view in the nature of a partial cross-section near the end of the grainer. Fig. 3 is a broken face view of a broken part of the side lining and holding-screw.

A indicates the framing of a wooden grainer; B B, the bottom planks, and C C the side planks, of the grainer-trough.

The planks B C form the casing of a long shallow trough, which trough contains a number of steam-pipes D D, preferably running lengthwise of the trough, the pipes C being sustained by hangers E from the top timber A′ of the framing. The top timber A′ supports the runway G G, which is composed of planks extending lengthwise of the trough. The inside of the trough is lined with a layer of cement I—such as Portland or other similar water-proof cement—preferably about an inch in thickness. A bottom lining K, composed of slabs of sawed stone, is placed inside the wooden grainer-trough with the coating or layer of cement interposed. The stone slabs K are similar to flag-stones, except that they are sawed true and even on both surfaces. The meeting edges of the slabs forming the lining of the grainer are grooved, as shown at L, and the grooves are filled with cement, the cement thus firmly sealing the joints, and also serving to key the slabs together.

The stone slabs K′, forming the lining of the sides of the grainer, extend between the edges of the bottom slabs K and the sides of the grainer and are thus firmly held in place at their lower edges. The upper edges of the slabs have holes or notches cut therein, and a lag-screw M passes through each hole or notch and enters the side planks C. A washer O may be interposed between the head of the screw and the stone slab.

The runway G is supported on top of the cross-timbers of the grainer in the usual manner, and receives the salt when raked out of the grainer.

Salt-grainers constructed of planking have been known for many years. These are simply large shallow troughs having steam-pipes inside. Salt brine is put into these troughs and maintained at a high temperature, usually about 220°. The brine in such case is absorbed by the wood, and the wood warps, cracks, and becomes discolored and appears as if charred. In raking the salt from the grainers splinters of wood are mixed with the salt, and in an old grainer the salt is much deteriorated. Metallic linings have been tried; but the brine rusts the metal and the salt is discolored.

The stone lining to my grainer can be kept clean and does not injure the salt. The cement-coating interposed between the stone slabs and the planks of the grainer serves not only to make the lining water-proof, but is also a good non-conductor, and prevents loss of heat by radiation.

The entire structure, made up as it is of an outer box of wood, a layer of cement next the wood, and a lining of sawed stone slabs, makes a very excellent grainer, which is durable, water-proof, and economical of fuel by reason of its non-conducting qualities. I have used such a grainer and find a great improvement in the quality of the salt manufactured therein over that of any other grainer with which I am familiar; and while the first cost of such grainer is greater than that of a plain wooden or metal lined grainer, I believe that owing to greatly-increased durability, and especially to the economy of fuel due to its non-conducting qualities, the relative cost is greatly in favor of my improved grainer.

I claim—

1. In a salt-grainer, the combination of the outer casing or trough of wood, the interposed layer of cement, the inner lining of stone slabs grooved at their meeting edges, as

described, and the key or fastening of cement which enters said grooves and locks the slabs in position, substantially as described.

2. A salt-grainer consisting of an outer casing of wood constituting a trough, an inner lining of stone slabs attached to the wood by suitable fastenings, substantially as described, an interposed packing or layer of cement, and heating-pipes inside the grainer suspended from the top, so as to be out of contact with the stone lining, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

NATHAN S. BEARDSLEE.

Witnesses:

WILLIAM BRISTOL,

F. J. HUMPHREY.