

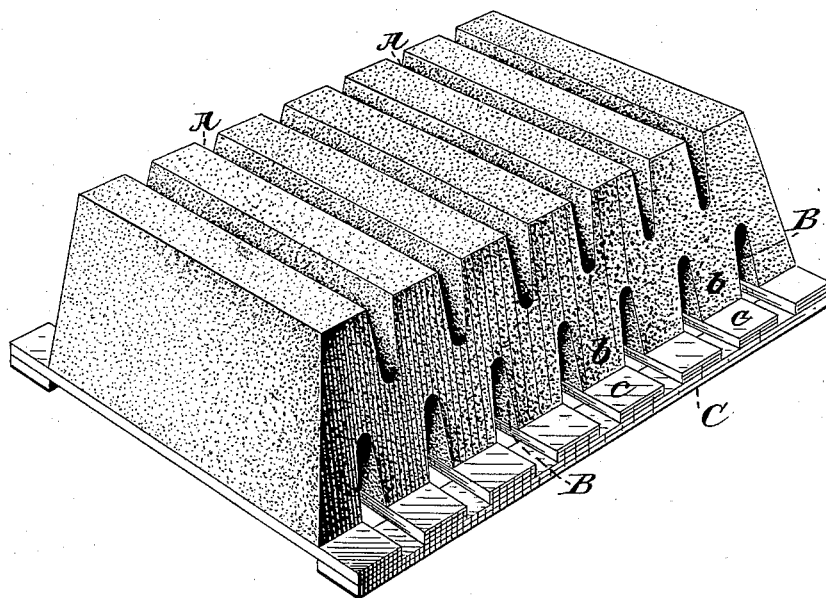
(No Model.)

J. McCRODDEN.

SODA BLOCKS.

No. 264,044.

Patented Sept. 5, 1882.



Witnesses:

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UNITED STATES PATENT OFFICE.

JAMES McCRODDEN, OF NEW YORK, N. Y.

SODA BLOCK.

SPECIFICATION forming part of Letters Patent No. 264,044, dated September 5, 1882.

Application filed June 15, 1882. (No specimens.)

To all whom it may concern:

Be it known that I, JAMES McCRODDEN, of the city, county, and State of New York, have invented certain new and useful Improvements in Soda Blocks, which are described in the following specification in such full, clear, and exact terms as will enable those skilled in the art to which they appertain to make and use the same.

10 In the manufacture of the commercial soda one of the necessary steps consists in treating the carbonate of soda with carbonic-acid gas to produce the bicarbonate of soda; and it is during this part of the process of manufacture
15 that the proper massing of the soda becomes an important consideration, and to which my invention is especially adapted. In converting the carbonate into the bicarbonate the former has been spread over shallow trays, which are provided with cloth bottoms, through
20 which the gas could have access to the mass from below, and which, with their contents, were exposed to the action of carbonic-acid gas in a closed chamber. The carbonate has, also, in some instances been formed into per-
25 forated blocks, resting upon wooden trays or stock-boards previous to being submitted to the carbonating process. These methods of preparing the carbonate for the carbonating-chamber have disadvantages that I fully overcome
30 by my present invention, which consists in integrating the soda by means of a suitable mold into blocks of a convenient size, the upper and under surfaces of which are transversely or
35 longitudinally scored with deep channels or furrows, those channels made in the one surface of the block being located intermediately with reference to the positions of the corresponding channels in the opposite surface
40 thereof.

The accompanying drawing illustrates such a block of soda, which is rectangular in general shape, and the sides of which are slightly beveled. Its upper surface is indented with the channels or furrows A and its under surface
45 with the channels or furrows B. These channels A and B are represented as transverse; but they may be longitudinal or even diagonal. Blocks of this kind are shaped in any
50 appropriate mold provided with inwardly-projecting channel-formers, and arranged to contain a rack composed of cross bars or cleats

which correspond in width and number to the solid portions *b* of the under surface of the block, each of which constitutes a stock-board
55 for the block. Such a rack is also shown in the drawing with the formed block of soda upon it, C being the side bar and *c c* the cleats. Upon such racks or stock-boards the blocks are molded, with the solid portions *b* of
60 their under surfaces resting upon the cleats *c* of the rack and the channels B coming over the openings between the cleats; and it is by means of these racks that the blocks are re-
65 moved from the mold and transferred to the carbonating-chamber. By thus molding the soda into homogeneous masses it is at once rendered self-sustaining, and considerable
70 time is gained that heretofore has been consumed by the preliminary drying necessary to the handling of the blocks.

It will be seen that the block is so constructed that the distance the impregnating gas has to penetrate is substantially the same for all
75 parts of the block, for which reason, and because this distance or the thickness of the block is never in excess of the penetrating-power of the gas, a further saving of time in the carbonating processes is also effected.
80 The peculiar form given to the block is such that, compared with its entire bulk, the greatest area of surface is exposed to the carbonat-
ing-gas, while only such a portion of the same becomes the bearing-surface as is actually nec-
85 essary to support the block. This improves the grading of the soda by diminishing the deteriorating effect which discoloration incident to the contact of the soda with the stock-
90 boards has upon its commercial value, and reduces the destructive corrosive action of the soda upon the stock-boards, thus greatly lessening the consumption as well as the nec-
95 essary number of such stock-boards, which, also, when made in the form of racks, can be supplied at a cost far less than the trays or stock-boards heretofore used.

The temperature of the charging-chamber is, for the purpose of rendering the carbonate more absorbent, generally raised sufficiently
100 high to cause the liquefaction (more or less) of the crystals of soda, and in the irregular and uneven masses of soda as commonly intro-
duced into the charging-chamber the tendency of the liquor produced by the dissolved crys-

tals is to settle to the bottom of the mass, particularly if the soda contains a surplus of such crystals, and when cooled this liquor forms into a hard dense crust, upon which the gas
5 has practically no effect. By submitting the soda to the action of the gas in blocks molded to a form substantially as above described this trouble is avoided, because all sides of the blocks, and particularly the greater portion
10 of their under surfaces, are exposed to the influence of the heat and action of the gas, thus causing the blocks to become uniformly heated and the dissolved crystals to be held in suspension or absorbed; or, if the crystals be
15 in such excess that a liquid collection results, the bearing-surfaces of the blocks are too narrow and the facilities offered for drainage so ample that the retention of such liquid within the mass composing the block is practically
20 impossible.

The exact shape of the channels A and B is not material. They may be in cross-section of an angular, square, or curved shape, and they may extend deeper into the block than
25 shown by the drawing. A block of soda deeply

scored with channels in one of its surfaces manifestly would have some of the essential advantages possessed by a block having channels alternately occurring in its upper and under surfaces; but this latter form is preferable. If, however, the block is furrowed in one of its surfaces only, preferably this should be the under surface, as this will give more efficient drainage.

What is claimed as new is—

1. A block of soda having its surface grooved or furrowed, substantially as and for the purpose set forth, whereby the mass composing the block may be more thoroughly exposed to the influence of heat and the action of impregnating gases.

2. A block of soda the under and upper surfaces of which are channeled or furrowed, the channels or furrows in one surface being located substantially intermediate with reference to those in the opposite surface.

JAMES McCRODDEN.

Witnesses:

W. F. HAPGOOD,

R. F. GAYLORD.