(No Model.)

J. McCRODDEN.

MOLD FOR FORMING BLOCKS OF SODA.

No. 264,730 Patented Sept. 19, 1882.

fig. 1.

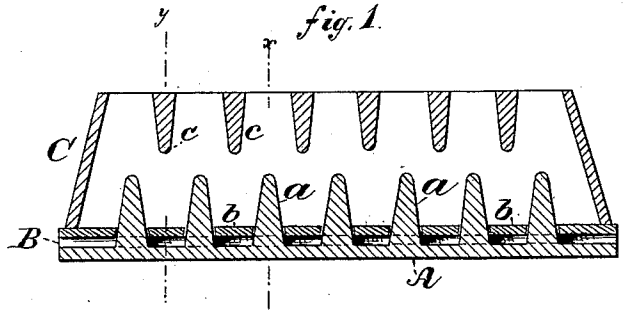


fig. 2.

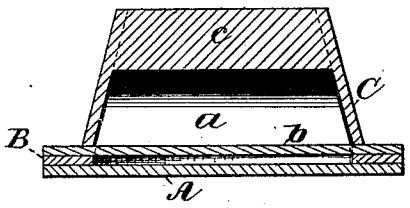


fig. 3.

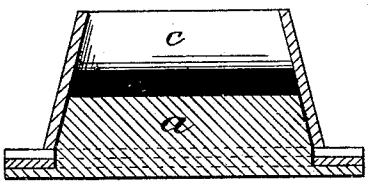


fig. 4.

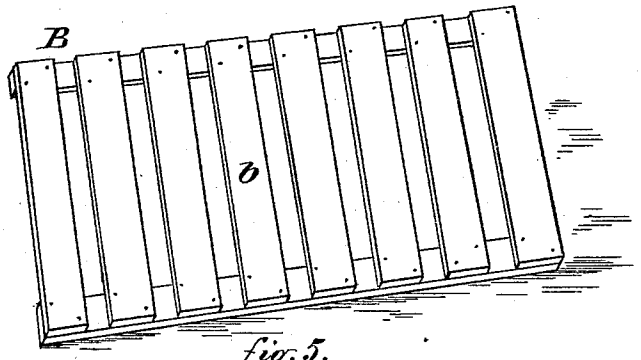
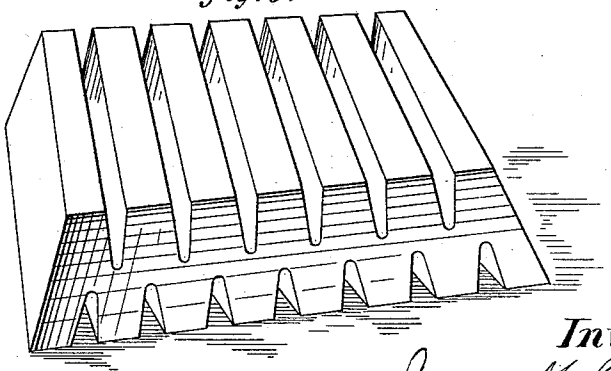


fig. 5.



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UNITED STATES PATENT OFFICE.

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MOLD FOR FORMING BLOCKS OF SODA.

SPECIFICATION forming part of Letters Patent No. 264,730, dated September 19, 1882.

Application filed June 3, 1882. (No model.)

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 Molds for Forming Blocks of Soda, of which the following is a specification in such full, clear, and exact terms as will enable one skilled in the art to make and use the same, reference being had to the accompanying drawings, forming a part of the same.

In the manufacture of the commercial soda one of the steps in the process consists of the conversion of the carbonate of soda into the bicarbonate of soda by the subjection of the carbonate to the action of carbonic-acid gas; and it is to this step in the manufacture of soda that my invention is particularly applicable.

Heretofore the bicarbonate of soda has been produced by treating the carbonate of soda in shallow trays having cloth bottoms and confining these trays in closed chambers, when their contents were exposed to the action of the carbonating-gas. The carbonate has also been formed into perforated rectangular blocks before being submitted to the carbonating-gas. These methods of preparing the carbonate for the carbonating process are, however, unsatisfactory, because of the loss of time occurring from the necessity of drying the blocks before they can be handled, and because much time is consumed in charging these irregular blocks or loose masses on account of the surface exposed being small compared with the bulk to be treated; or they are very imperfectly charged, owing to a liquid deposit likely to occur by reason of an unequal temperature throughout the mass and an excess of the crystals of soda; and, again, the corrosive action of the soda upon the stock boards or trays which support or hold it results not only in the discoloration of the soda, but in the rapid consumption of the stock-boards.

The object of my invention is to overcome these difficulties by forming the soda into blocks of convenient size, which can be immediately handled without preliminary drying, which shall be of such shape as to present the largest area of surface, compared with their bulk, to the action of the carbonating-gas, the bearing-surfaces of which shall be as small as is practical and permit the use of stock-boards simple in construction and of small cost, and the thickness of all parts of which shall be uniform and no greater than represents the ready penetrating power of the carbonating-gas; and my invention consists of a mold of two or more detachable parts, which are so arranged as to form blocks of soda rectangular in general shape, and having transverse or longitudinal channels or grooves in their upper surfaces, which are substantially intermediate with reference to corresponding grooves or channels in their under surfaces.

In the drawings illustrating my invention, Figure 1 is a longitudinal section of the mold, Figs. 2 and 3 being respectively cross-sections on the planes *x* and *y* of Fig. 1, while Fig. 4 is a view of the rack upon which the blocks of soda are formed; and Fig. 5 represents the product of the mold.

The letter A indicates the bed or drag of the mold, from which project the groove or channel formers *a*, and upon which the stock-rack B rests, with its slats *b* lying between the formers *a*.

C is the case or cope of the mold. This cope supports the groove or channel formers *c*, which, when the cope is in its proper position on the drag, are directly over and between the formers *a*. The cope of the mold and also the upper and lower groove formers are slightly beveled or inclined, to permit the easy withdrawal of the cope from the formed blocks and the blocks from the drag.

When in use the mold is filled through the open top with soda in a properly plastic state, which is then compressed or tamped, if necessary. The cope of the mold, carrying with it the upper groove-formers, is then lifted off, and by means of the stock-rack the block is removed from the drag and transferred at once, if desired, to the carbonating-chamber, it being, as thus shaped, sufficiently self-sustaining.

In charging soda with carbonic-acid gas when in blocks of the form described a considerable saving of time over any previous process is effected, because the soda is uniformly presented to the gas in masses readily penetrated by it. The tendency to liquid formation is also greatly lessened, because the surface exposed to the heat is so extended that the whole body of the block is kept at an even temperature and moisture is absorbed as rapidly as formed, or, if existing in excess, adequate

drainage is afforded through the supporting-rack, and saturation of the soda becomes impossible. And a further saving in the cost of stock-boards is effected by reason of reducing the bearing-surfaces of the blocks to a minimum, whereby fewer stock-boards are required and the corrosive action of the soda upon these stock-boards is much lessened, which renders them serviceable for a greater length of time than heretofore, and the grading of the soda is improved by thus removing to a considerable extent the cause of discoloration.

The upper and lower channel-formers may be separate from the cope or drag, if convenience requires, and the upper formers may be arranged to be inserted in the mold after it has been filled.

What is claimed as new is—

1. A mold, substantially as above described, for forming blocks of soda, the cope and drag of which are provided with inwardly-projecting groove-formers so arranged that the groove-formers on the cope occupy an intermediate position relatively to the groove-formers on the drag.

2. In combination with a mold for forming blocks of soda, a removable rack or perforated board adapted to be placed between the drag and cope and constitute the stock-board upon which the block is formed, and by which it is removed from the mold, substantially as described.

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