B. MORAHAN.

Manufacture of Stationary Wash-Tubs of Clay or Porcelain.

No. 207,978. Patented Sept. 10, 1878.

Fig. 1.

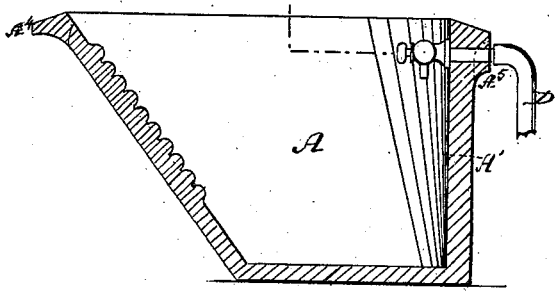


Fig. 2.

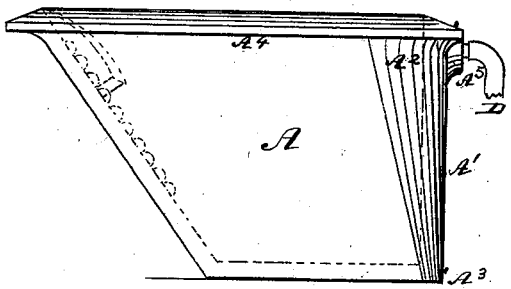


Fig. 3

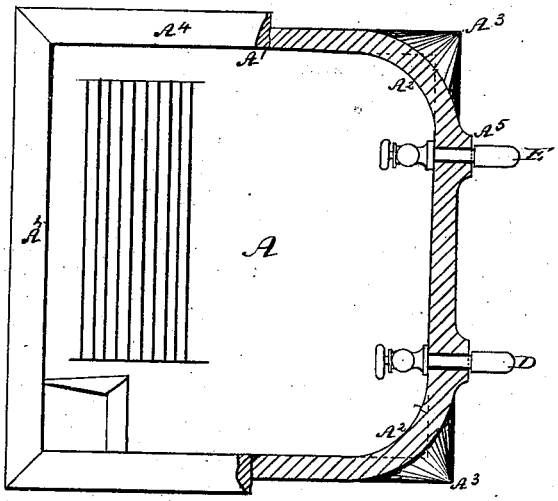


Fig. 4.

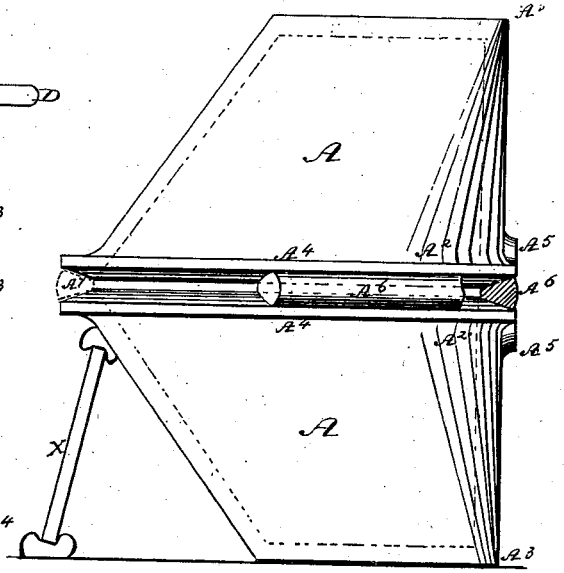
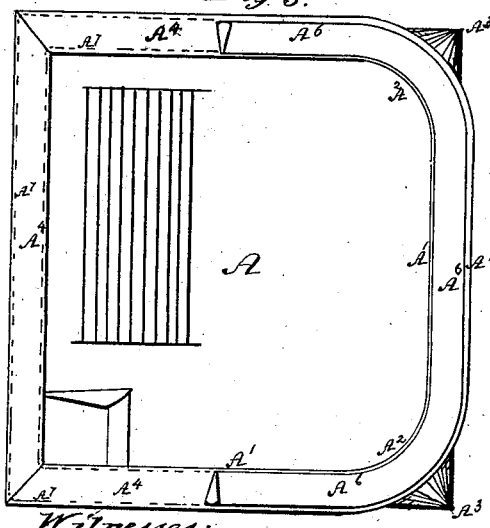


Fig. 5.



Witnesses:—
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Chas. C. Stetson

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Thomas D. Stetson

UNITED STATES PATENT OFFICE.

BERNARD MORAHAN, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN THE MANUFACTURE OF STATIONARY WASH-TUBS OF CLAY OR PORCELAIN.

Specification forming part of Letters Patent No. **207,978**, dated September 10, 1878; application filed April 29, 1878.

To all whom it may concern:

Be it known that I, BERNARD MORAHAN, of Brooklyn, Kings county, State of New York, have invented certain new and useful Improvements relating to Crockery Wash-Tubs, of which the following is a specification:

The general construction of my tub corresponds with that described in my patent dated September 7, 1869, No. 94,501; and it may be correspondingly supported in cast-metal frames, as described in my patent dated June 10, 1873, No. 139,685. It may have covers, wood frames on the edges, and any other adjuncts which are necessary or desirable.

My invention relates to certain peculiarities in the form. There is a liability to crack in the burning unless the corners are rounded, and the rounding of the corners interferes with the proper support. I have discovered a form which can be constructed with little liability to crack, while it affords a broad and reliable base for supporting the tub by the bottom upon the frame. My form is rectangular, or nearly so, at the base, but is round-cornered at the top. The rounded corner gradually decreases from the top downward.

My tub may be formed by molding in plaster-of-paris from a suitable composition of clay. It may be glazed and otherwise treated in the same manner as the tubs I have previously described. The broad base, with its angular or nearly angular corners at the bottom, gives a reliable support, which may rest either directly on the metal frames or on a bedding of rubber, felt, or analogous yielding material, or on putty, cement, or analogous material which will ultimately harden. The liability of the bottom to crack is far less than that of the top. The upper portion, where the cracks are liable to start, is rounded at each corner with a considerable curve.

I re-enforce the places where the water-pipes are joined, and give these parts a sufficient thickness to take the bearing when the parts are screwed together. There is no strain on the ceramic material due to the setting up of any bolts.

The accompanying drawings form a part of this specification, and represent what I consider the best means of carrying out the invention.

Figure 1 is a vertical section. Fig. 2 is a side elevation. Fig. 3 is a horizontal section. Fig. 4 represents my method of setting the tubs in the kiln for burning, and Fig. 5 is a plan view of the lower tub with the roll of clay in position ready to receive the upper tub in an inverted position for burning.

Similar letters of reference indicate like parts in all the figures.

A is the body of the tub, certain portions being represented by A^1 A^2, &c., when necessary to distinguish those parts. The water-pipes are indicated by D and E.

The sides are plane throughout the upper portion of their extent. At each corner, at the top, they are joined by a curve of considerable radius. This rounded corner is continued, but with a gradually-reduced radius, from the top to the bottom. At the bottom it is nearly or quite an angular corner. The plane sides are marked A^1, the rounded corners at the top A^2, and the angular corners at the bottom A^3.

The points where the water-pipes D and E are joined are thickened, as indicated by the re-enforces A^5. These re-enforces are sufficiently thick to enable the crockery to resist all the strains which can be brought on it by the lock-nut or jam-nut applied on the water-faucet in making the connection.

The upper edge is widened by a flange, A^4, which is rounded or beveled in the re-entering angle below.

The bevel on the under side of the flange A^4 is important in avoiding a breakage when the clay shrinks in the mold. The bevel allows the upper part of the tub to sink down a little wedgewise.

The strain by shrinkage does not break off my beveled flange, but simply inclines its outer edge upward. This is afterward remedied by cutting off from the top to produce the correct form.

In the act of placing the articles in the kiln, I place first one tub right side up, and then place upon it another tub in an inverted position, and introduce soft clay in the space between their upper faces, but for only a portion of the distance around. The inclined front edge of the tub is weak. The back and the main portion of the sides only are vertical, and well adapted to resist the considerable verti-

cal pressure. I so dispose the interposed clay that the load is all taken on those parts which are vertical.

The roll of clay introduced between the tubs is marked A^6. (See Figs. 4 and 5.) It extends along the entire back and along a portion of each side. It is omitted along the front, and also along that portion of each side which overhangs the bottom. By this means the load imposed by the upper tub is all received on the back, and on the back portions of the sides of the lower tub.

To still further preserve the overhung front edge of the lower tub, I brace it up in the kiln, as indicated by X, Fig. 4, putting a little soft clay between the upper edge of the brace X and the front face of the tub.

The greatest liability of cracking is through the top or edge drying faster than the bottom through the moisture sinking therefrom, along with the fact that the air plays more freely around the top. I help to equalize the drying of top and bottom by having a heavy bead around the top or edge, which also serves to keep the edges from crooking or warping through strengthening. It also gives the advantage of enabling me to set the tubs, in the kiln to be fired, one on top of the other, mouth and mouth together, having a roll of soft clay between, on this broad edge, which the addition of this heavy bead affords me to set the rolls on. If I had not this bead added, the rolls would not have sufficient surface to spread on to give a good and sufficient bearing in proportion to the great weight, and the roll would be likely to spread over the edge on the inside of the tub, and when it would dry would be likely to drop into the tub, and when fired would be found fastened a solid stone lump to the glaze.

I can round the back corners and front corners both at the top, and extend the rounding gradually downward, dying out toward the bottom; but my experiments indicate that such is not necessary. The back corners are the main sources of difficulty. I prefer to round the back corners only, leaving the front corners sharp all the way up and down, so that the latter will tightly fill the frame.

The form of the upper face or edge is important. There is a slight inclination, the inner edge being the highest. This form diminishes the risk of any parts of the roll of soft clay which is placed between the tubs being squeezed out on the inner side, and when the tub is finished it improves the finish by making the inner and visible edge form the tightest joint against the wood frame, (not represented,) which covers the edges.

In order to prevent the access of the sulphurous gases to the glazed inner surfaces of the tubs, I stop the joint between the front edges of the tubs and the ends of the roll A^6 with clay, as indicated by dotted lines A^7 in Figs. 4 and 5; but I take care to pack this clay filling so slightly as only to stop the access of gases, and not to take any considerable portion of the weight.

Potters will readily understand that the upper edges of the tub must not be glazed, as otherwise the roll of clay which takes the weight, and also the loosely-packed clay which simply stops up the gases, would stick to the articles and cement the whole together.

I claim as my invention—

1. The ceramic-ware wash-tub described, having angular corners at the bottom and rounded corners at the top, adapted to serve as and for the purposes herein specified.

2. The ceramic-ware wash-tub described, having the upper face or edge highest on the inside, and widened by a flange, A^4, and unglazed, as and for the purposes herein specified.

3. The method described of placing and supporting the ceramic-ware tub in the kiln—that is to say, by placing two tubs mouth to mouth, with a layer, A^6, of clay placed between the broadened rims A^4 at the back portion, leaving the front or slanting portion free from pressure, as herein specified.

In testimony whereof I have hereunto set my name in presence of two subscribing witnesses.

BERNARD MORAHAN.

Witnesses:

W. L. BENNEM,

CHAS. C. STETSON.