(No Model.)

W. D. STEWART.

PROCESS OF MANUFACTURING CROCKERY WASH TUBS.

No. 438,200. Patented Oct. 14, 1890.

Fig: 1.

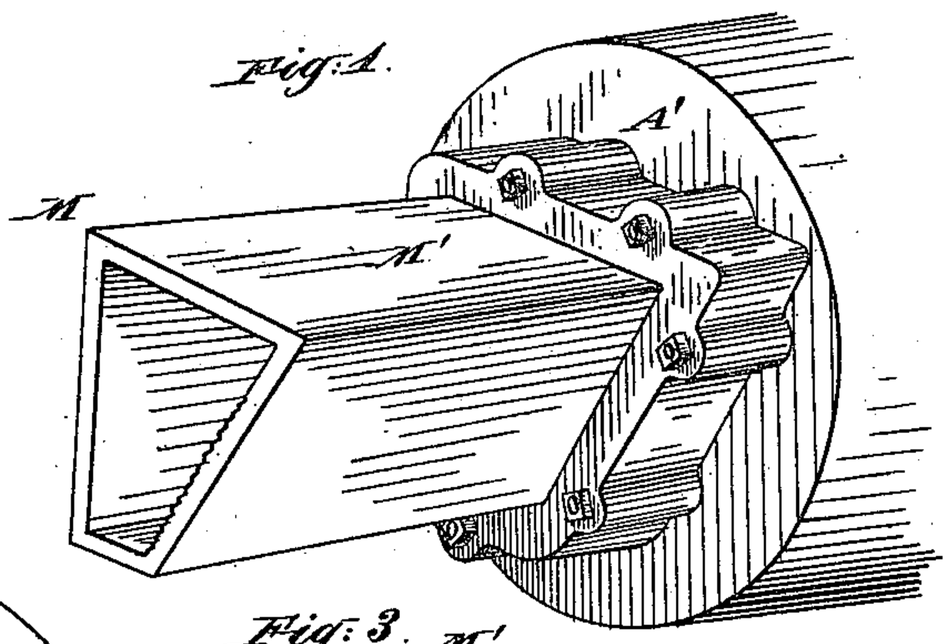


Fig: 2.

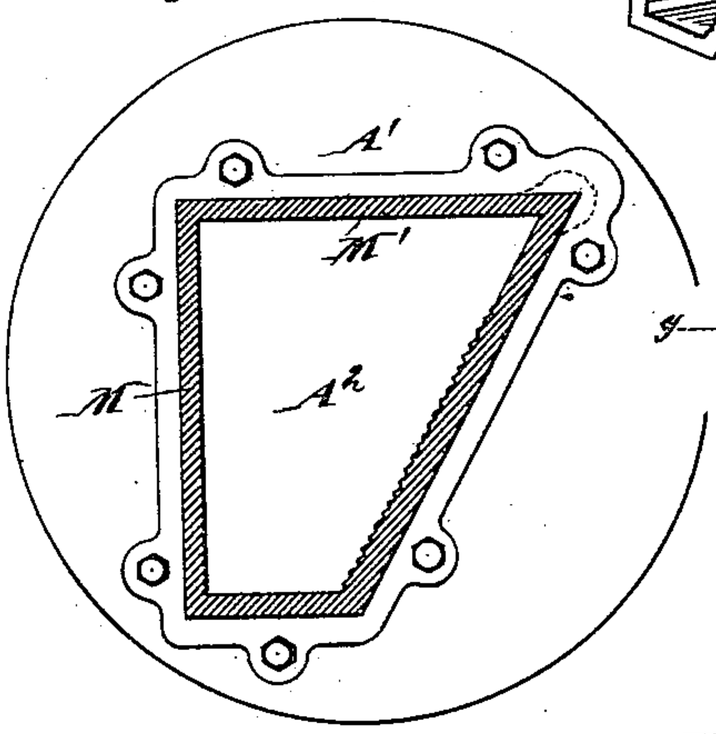


Fig: 3.

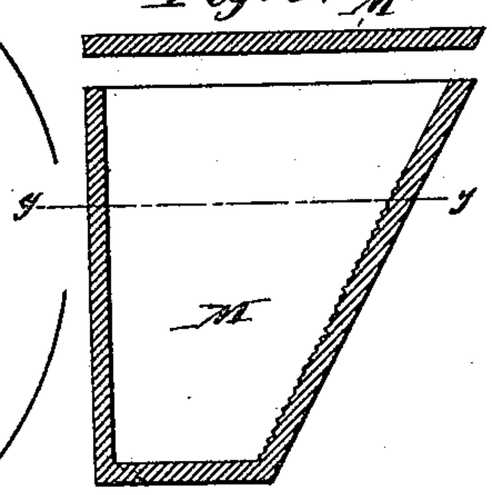


Fig: 4.

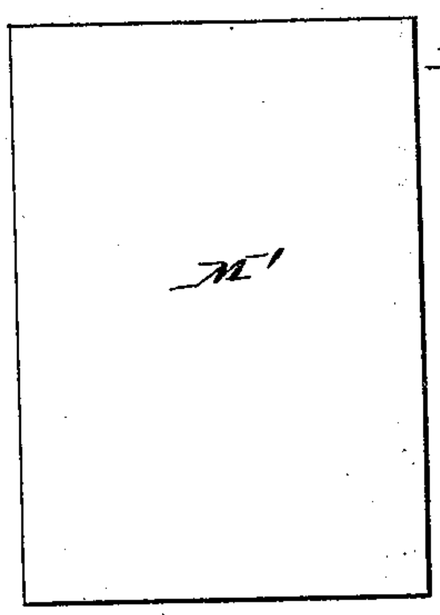


Fig: 5.

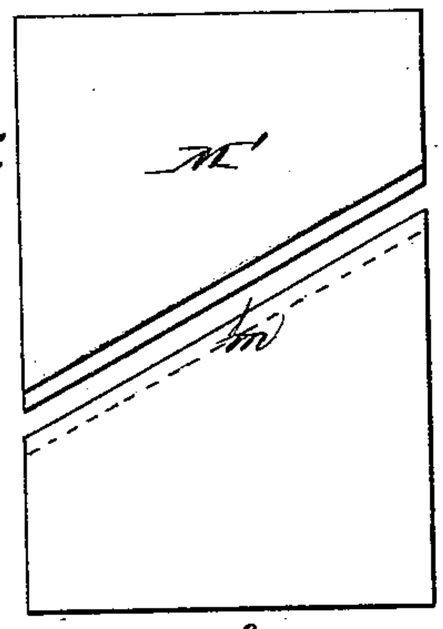


Fig: 6.

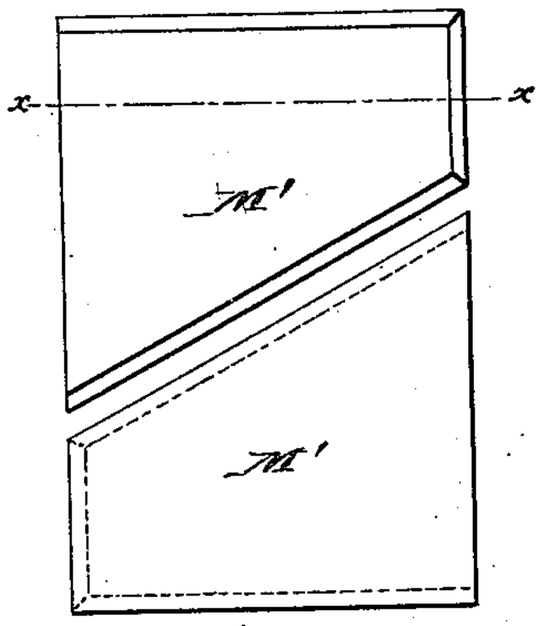


Fig: 7.

Fig: 8.

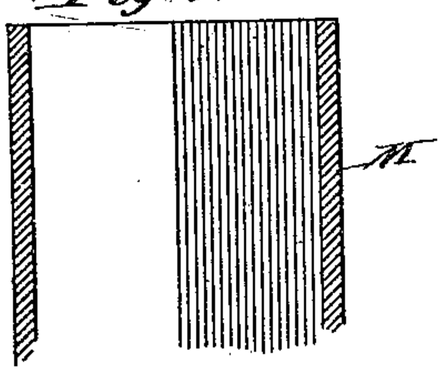


Fig: 9.

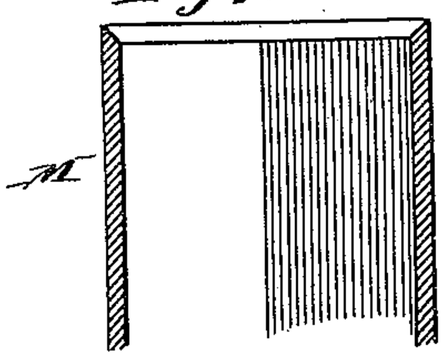
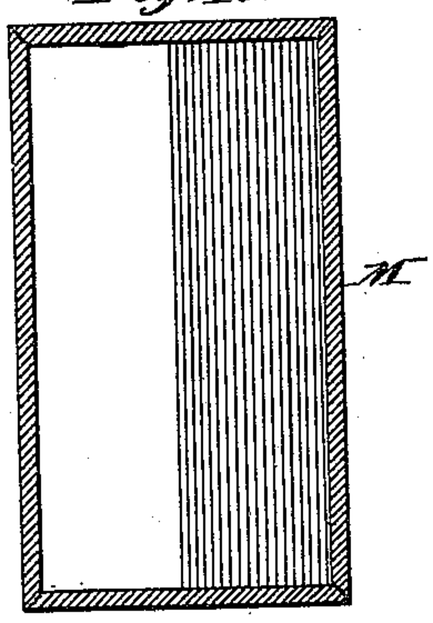


Fig: 10.



Witnesses:
Charles R. Searle,
Chas. S. Barber.

Inventor:
William D. Stewart
by his attorneys
Thomas Dyer Stetson

UNITED STATES PATENT OFFICE.

WILLIAM D. STEWART, OF BROOKLYN, NEW YORK.

PROCESS OF MANUFACTURING CROCKERY WASH-TUBS.

SPECIFICATION forming part of Letters Patent No. 438,200, dated October 14, 1890.

Application filed November 12, 1889. Serial No. 330,050. (No specimens.)

To all whom it may concern:

Be it known that I, WILLIAM D. STEWART, of Brooklyn, in the county of Kings and State of New York, have invented a certain new and useful Improvement in Methods of Manufacturing Ceramic or Crockery Wash-Tubs, of which the following is a specification.

The improvement applies to the whole line of crockery-ware tubs adapted to be set up in kitchens or elsewhere to serve as stationary tubs for domestic or other laundry purposes. It is common to make such tubs with flat bottoms and with perpendicular backs and ends, and with the front side inclined so as to form a convenient surface for washing on the latter. It is common to groove the inner face of the front side. I conform to all these conditions by my mode of manufacture and produce tubs in all respects of the usual and proper form with great uniformity of structure and great rapidity and economy. No extra skill is required.

I work the clay very thoroughly in a pug-mill or by any other suitable means and force it out through dies of such form and so adjusted that a continuous tube will be formed having the required cross-section with the addition of a plate of the same well-worked clay extending across the top—that is to say, the "tube," if such it may be called, is a four-sided but not rectangular hollow case having four plane faces, a bottom face, a back face at right angles with the bottom, a top face at right angles with the back and parallel with the bottom, and a front face at an angle of about sixty degrees (60°) with the bottom properly formed with horizontal ridges on its interior, all the faces and all the angles being joined and all strong and uniformly dense throughout.

The "tube," as I will call it, is of the size required to constitute each length a portion of a tub. It is produced of any length required greater than that necessary for a single tub, and is cut off by a wire or by other suitable means after it is forced out from the dies in proper lengths. Next and before the short section of tube is much dried it is divided longitudinally by a wire or by other suitable means in a horizontal plane just below the top plate. The top plate is removed and its beveled edge squared and is then laid upon a bench or other horizontal or nearly horizontal support and divided by an approximately diagonal wire, so as to transform the rectangular top into two equal or nearly equal parts each of the proper form to serve as a side for the same tub or for another of the same form and size or only a little larger or smaller. Next the partly-formed tub and the plane slab of clay thus removed and divided are wetted and scratched along the surfaces which are to be joined, and this treatment is repeated until a sufficient thickness of the stiff clay is softened to insure a firm junction. Then the plane pieces are by hand or by any suitable frame or other appliance brought into position and pressed firmly together, and the surfaces worked together, thrusting in a suitable implement to knead the clay and adding clay if necessary, so as to thoroughly knead the clay into a well-united condition differing only from the other portions of the tub in being wetter, and therefore softer. Now the tubs are allowed to stand on suitable open-work supports in the shade until dry, when the whole is glazed and burned.

It will be understood that the shape may be perfected by molding upon a form of wood or other material, that the whole or any portion may be hardened by beating with any suitable percussive implement or by compressing more or less strongly by hydraulic or other force, and that the surfaces at the top where the plane slab was removed and at any points may be slicked by any ordinary or suitable means. The precautions ordinarily practiced by potters—such as turning the articles during the drying—may be practiced with my method.

I have discovered that the junction is improved by beveling the joining surfaces. I effect such beveling by removing a quantity of the material by cutting with a wire or compressing gradually into the beveled condition during the softening and working preliminary to bringing the parts together. The beveling aids to insure exactness of position of the joined parts and obviously increases the extent of the joining surfaces.

The following is a description of what I consider the best means of carrying out the invention.

The accompanying drawings form a part of this specification.

Figure 1 is a perspective view showing the tube emerging from the dies being driven by a plunger, a screw, or other means not shown from a hopper or reservoir beyond the dies shown. Fig. 2 is a partial cross-section of the tube and forming-dies. Fig. 3 is a sectional view of the tube after the top has been cut off but not far removed. Fig. 4 is a plan view of the top slab after its removal and the squaring of its edge and before it is divided. Fig. 5 shows the same after it has been obliquely divided and slightly separated. Fig. 6 shows the same after each division has been beveled. Fig. 7 is a section on the line $x\ x$ in Fig. 6. Fig. 8 is a horizontal section on the line $y\ y$ in Fig. 3. Fig. 9 is a horizontal section on the same plane after the ends have been beveled on the edges. Fig. 10 is a horizontal section of the tub complete.

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

A′ is the external portion of the forming parts or the outer die, and A^2 is the internal portion or the inner die.

The tube of clay is marked M, certain portions being designated, when necessary, by supernumerals, as M′. The extended plane portion constituting the top of the tube is marked M′. The approximately diagonal cut or division made across it is marked *m*. It will be understood that when the plane portion M′ is first shaped it is a portion of the tube after it has, by a wire or otherwise, been separated from the rest of the tube. It is a single plane rectangular slab, and after it has been divided along the line *m* it is two slabs of the proper size, and when beveled of the proper form to constitute the ends of the tub when completed.

The devices for operating a stretched wire to cut off the slab M′ from the other portions of the tube and for slicking the surfaces and for dividing the slab M′ along the line *m* need not be particularly described. Neither need the devices for cutting off a portion from the edges of the part M at each end and for cutting off a portion along the corresponding three edges of the several parts M′ M′ be specially described. Each may be a light C-shaped frame with provision for stretching a wire across the open side. Each may be operated by hand or by any suitable machinery.

My experiments indicate that the tubs will be practically homogeneous. The joints (indicated by slight wavy lines at the several corners in Fig. 10) are not in fact apparent either in appearance or in strength.

Modifications may be made without departing from the principle or sacrificing the advantages of the invention. The corners may be rounded. If a corner is retarded so as to induce tearing of the clay, such portion may be made thicker, as indicated by the dotted lines in Fig. 2, the surplus thickness being cut off by a wire afterward. The increased thickness will let it run easier at that point.

Part of the invention can be used without the whole. I can make separate pieces for the ends, using the slab cut from the top for other uses or not at all. I can apply the ends as here shown, and make tubs successfully and economically, making the rest of each tub by pressing through dies, not, as here shown, in a complete tube, but in the form of a trough. I prefer the whole as shown and first described. The tubs can be made of less depth. In such case portions of the top slab will be cut off and rejected.

I claim as my invention—

1. The method of manufacturing rectangular vessels, as wash-tubs, of ceramic ware, which consists in forming a continuous tube of the proper section for the front, back, top, and bottom, cutting off the top, dividing it, and joining its parts to form ends to the tub, as herein specified.

2. The method of manufacturing stationary wash-tubs and other vessels of similar form, which consists in forcing out the material in a tube of proper section, cutting off the top and dividing it obliquely, beveling its edges and the ends of the bottom, back, and front, and wetting and applying together and joining the beveled and wetted edges, as herein specified.

3. The method described of producing the front, the bottom, and the back of a stationary wash-tub, which consists in forcing the well-worked clay through dies of the proper form to shape these parts, and also a top, and afterward removing the top, as herein specified.

In testimony whereof I have hereunto set my hand, at New York city, New York, this 27th day of September, 1889, in the presence of two subscribing witnesses.

WILLIAM D. STEWART.

Witnesses:
A. C. TANNER,
CHAS. F. BARTER.