To all whom it may concern:

Be it known that I, George J. Blackham, a citizen of the United States, residing at Uniontown, county of Fayette, and State of Pennsylvania, have invented certain new and useful Improvements in Foundry-Patterns for Molding Bath-Tubs with Varied Rims, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

This invention relates to the manufacture of cast iron bathtubs which are commonly formed upon the upper edge with a curled edge or roll. Different purchasers desire rolls of different widths upon the upper edge of the tub, and different manufacturers formerly made their patterns from which the tub was cast with a roll of a single unchangeable width which would suit only some particular demand, and numerous patterns were therefore required to supply the entire market.

On account of the size and thinness of a bath-tub casting, it is common to mold the “drag” and “cope” of the mold from two body patterns, one forming the outer side of the mold and the other the core which forms the inside of the casting, and these two patterns have complementary parts which shape the mold to form a roll of the desired width upon the casting. Such patterns are very expensive, as they are made of metal, and to avoid making as many of such patterns as there are different widths of rolls demanded in the market, the pattern shown in U. S. Patent No. 782,776 granted February 4, 1905 to F. D. Cook was devised, in which both of the two bathtubs patterns was formed with an integral bed-plate broad enough to support the flask of the mold and having complete detachable roll-sections fitted to suitable points upon the pattern.

The present invention comprises certain improvements in Cook’s construction, adapted to facilitate the handling of the parts in manufacture and the finishing of the parts, which are fitted together, by means of machine tool work. To effect this object, I furnish the bathtub pattern with a separate bed or bed-plate having a flat recess in its surface with parallel walls extending from end to end of the bed-plate; and between such parallel walls I insert parallel sections having each a half-roll fitted to the straight sides of the bathtub; and between the same parallel walls at opposite ends of the bed-plate I insert end-sections fitted to the outer ends of the bathtub and provided each with a curved portion of the half-roll, all of such sections being removable or interchangeable so as to permit the use of different half-roll sections with the same bathtub pattern.

The construction will be understood by reference to the annexed drawing, in which—Figure 1 is a section of the parts required to form the cope of the mold; Fig. 2 is a similar section of the parts required to form the drag or bottom of the mold, containing the core for the casting. Fig. 3 is a section of the finished mold, showing the cope and drag fitted together, to make the casting; Fig. 4 is an enlarged section of the left side of the bed in Fig. 1, with dotted lines in the half-roll section e showing variations in the width of the roll; Fig. 5 is an enlarged section of the left side of the bed in Fig. 2, with dotted lines at the left side of the roll e’ showing variations in the width of the roll; Fig. 6 is a plan of the mold-parts shown in Fig. 1; and Fig. 7 is a section of the bed-plate c and sections e on line 7—7 in Fig. 6.

For convenience, the term “roll” is applied to the same parts of the pattern which produce the roll in the bathtub casting. In Fig. 1, the cope-pattern a is shown formed with the half-roll b at its bottom adapted to form half of the tongue upon the cope which is required to shape the under side of the roll upon the bathtub. The cope-pattern a is secured to the bed-plate c by bolts g and the bed is formed adjacent to the edge of the cope-pattern with a recess d having parallel walls at the edges against which sections e are fitted and formed with the opposite half of the roll b, to complete the tongue upon the sand, when rammed into such groove. The sections e are secured in the recess d against its parallel edges by bolts f and are formed, as shown in Fig. 6, of separate side-pieces and end-pieces to facilitate their manufacture. The side-pieces do not include any curved portion of the molding, and this enables them to be planed out in forming the half-rolls, or otherwise finished in straight lines, which greatly reduces the cost of production. The end sections are fitted to the parallel walls of the recess the same as the side-pieces, and embrace the opposite ends of the margin of the pattern and are provided each with the
curved portion of the half-roll. All of the sections which form the half-roll are thus held in their proper relations by the parallel walls of the recess. The margin of the cope-pattern and the contiguous edges of these sections are oppositely hollowed to the shape desired for the roll upon its inner side, and the sections are readily removed and others substituted therefor, having their edges hollowed for a greater or less distance, as is indicated in Figs. 4 and 5, by the dotted lines r, s and t. The cope-pattern may thus be readily changed to form the roll of any desired size or shape upon the bathtub casting.

In Fig. 2, the bed-plate c is shown with the recess d upon its under side, but this side would be turned upwardly when ramming the sand; and it is shown inverted in the figure to make its relation to the cope apparent, and the flask k is also shown, with its bottom plate i attached, which forms a part of the finished mold, as shown in Fig. 3. The half-roll sections e', fitted to the recess, in Fig. 2, are not hollowed on their edges like the sections e, but are provided with a half-round projection, complementary to the groove formed in the hollow roll b in Fig. 1, and thus form at the bottom of the core a a continuous groove k in the sand, which with the roll m upon the sand at the base of the cope a, forms the curved edge on the bathtub casting. The sections e are made, like the sections e', of straight side portions and curved end portions, but all of the sections fitted to the parallel walls of the recess d', which holds them in their proper relation.

In Fig. 1, the flask k is shown resting upon the bed-plate c and held in place thereon by engaging dowel-pins p, which are set to correspond with the dowel-pins p upon the bottom flask k, and the upper and lower flasks are thus properly related when connected, as shown in Fig. 3. The bed-plate c is shown provided with a box q upon its lower side, which is in practice used to support the flask upon a truck while being rammed with sand. The variation required in the different interchangeable outer roll-sections, to produce rolls of different widths, is clearly shown in Figs. 4 and 5, where dotted lines r, s and t are shown at the outer sides, respectively, of the half-roll b and the half-roll b' in these figures; such lines showing the respective widths that would be given to the curved edge of the bathtub by using outer roll-sections thus shaped.

The body patterns are very heavy, and as the body shown in Fig. 2 is on the under side of the bed-plate when ramming the sand in the mold, it is shown suspended therefrom by yoke-shaped brackets u. This is the preferable construction; but the body pattern may, if desired, be bolted to the bed the same as the body shown in Fig. 1. The bed-plate c' is formed with an opening in the center through which the half-roll upon the edge of the pattern can be passed, so as to bring such half-roll into proper relation with the removable half-roll sections upon the opposite side of the bed-plate, and I have made a special claim to such construction. In order to save weight, the bed-plate c of Fig. 1 is also made with an aperture in the middle, opening to the interior of the body pattern, and the box-flanges which form the box g are extended from the bed-plate, as shown in Figs. 1, 2, 4 and 7, intermediate to such opening and the edge of the bed-plate. If the box-flanges were extended from the bed-plate close to the opening they would interfere with the application of the bolts g by which the body pattern is secured to the bed-plate. With the construction shown, the bolts lie within the line of the box-flange, as shown in Fig. 1.

I hereby disclaim anything that is shown and claimed in the Patent No. 782,776, referred to above.

Having thus set forth the nature of the invention, what is claimed herein is:

1. In a bathtub cope-forming pattern, the combination, with a body-pattern, of a separate bed-plate adapted to support the entire margin of the said pattern, the body-pattern having a half-roll at the margin adapted to rest upon the bed-plate, means for securing the margin of the body-pattern upon such bed-plate, straight sections having each an outer half-roll thereon secured at the sides of the said margin, and end sections connecting the ends of such straight sections and provided each with a curved portion of the half-roll.

2. In a bathtub cope-forming pattern, the combination, with a body-pattern, of a separate bed-plate adapted to support the entire margin of the said pattern, and having a recess with parallel walls d, the recess extending to the ends of the bed-plate at the opposite sides and ends of the said margin, means for securing the margin of the pattern upon such bed-plate between the two walls, straight sections having each an outer half-roll secured in the recess at the sides of the said margin, and end sections fitted to the outer ends of the said recess and embracing the opposite sides of the said margin and provided each with a curved portion of said half-roll, all of such sections being held in their proper relations by the parallel walls d of the recess.

3. In a bathtub cope-forming pattern, the combination, with a body-pattern, of a separate bed-plate adapted to support the entire margin of the said pattern and having an opening therein communicating with the interior of the body-pattern, and formed with a recess having parallel walls d extending to
the ends of the bed-plate at the opposite sides of the said margin, a box \( q \) formed beneath such bed-plate to sustain the same upon a truck, the box-flanges being intermediate to the inner and outer edges of the bed-plate, means for securing the margin of the body-pattern to the bed-plate within the line of the box-flanges, straight sections having each an outer half-roll thereon secured in the recess at the edges of the said margin, and end sections fitted to the outer ends of the recess and embracing the opposite ends of the said margin and provided each with a curved portion of such half-roll, all of such sections being held in their proper relation by the parallel walls \( d \) of the recess.

4. The combination, with a bathtub pattern for forming the drag or bottom of the mold and having a half-roll at the margin, of a bed-plate having an opening through which such half-roll can be passed, removable half-roll sections \( y \) upon the bed-plate around the edge of such opening, and brackets arranged and operated to secure the bathtub pattern to the upper side of the bed-plate with its half-roll suitably fitted to the removable half-roll sections.

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

GEORGE J. BLACKHAM.

Witnesses:

CHARLES T. CRAMER,

GEORGE E. CRAMER.