

Patterns and the Molding of Cast Iron Banks

Supplement No. 1: Working Patterns and Pattern Trees*

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Introduction

This is a supplement to the paper "Patterns and the Molding of Cast Iron Banks" that appeared in the *Penny Bank Post*.¹ The purpose of this and future Supplements is to expand on the subject, present new examples, and also to correct errors.

Supplement No. 1 provides examples of working patterns that show either how the patterns were perfected and or how they were assembled into pattern trees for use in mold making. The patterns shown were photographed during a visit with Frank Kidd at Kidd's Toy Museum in Portland, Oregon. Bill Robison and John Mahon contributed information and explanation.

Working Patterns

In his seminar Bill Robison explained that after a working pattern was cast it was "perfected," meaning that it was touched up to repair defects and sharpen details. Where necessary to fill voids, solder was applied and shaped. Photos 1 to 3 show a working pattern for a "Clown" bank similar to M-211.² In Photo 2 a repair to the side of the right leg is apparent and in Photo 3 repairs to the hat, ear, and neck can be seen.



Photo 1. Brass working pattern for a "Clown" bank similar to M-211.



Photo 2



Photo 3. Note how solder has been applied to the hat and the area of the ear.

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Pattern Trees

In the *Penny Bank Post* paper "pattern trees" had to be represented schematically because photos of actual pattern trees were not available. Thanks to Frank Kidd, authentic examples now can be shown, and in the process, some additional details about mold making described.

Photo 5 shows partial pattern trees for the three castings necessary to produce the "High Rise Tiered" building bank, M-1218. The pattern tree at the left is for the base of the bank, the center tree is for the sides, and the right tree is for the top of the bank. For reference, Photo 4 shows a complete set of pattern pieces assembled into a bank.



Photo 4

All of the pattern trees shown in Photo 5 are incomplete. It appears that the tree for the top of the bank is full length. It has gates (the wedge-shaped pieces) for all of the original eight patterns, but six of the patterns have broken off (or been broken off). The other two trees also have patterns missing, and they have been shortened. The tree for the sides of the bank has been cut in two; it appears that originally it had sixteen patterns. The tree for the base of the bank has only about 40% of the runner. (Given the number of patterns in each pattern tree, twice as many molds for bank sides would be necessary as molds for tops or bases.)

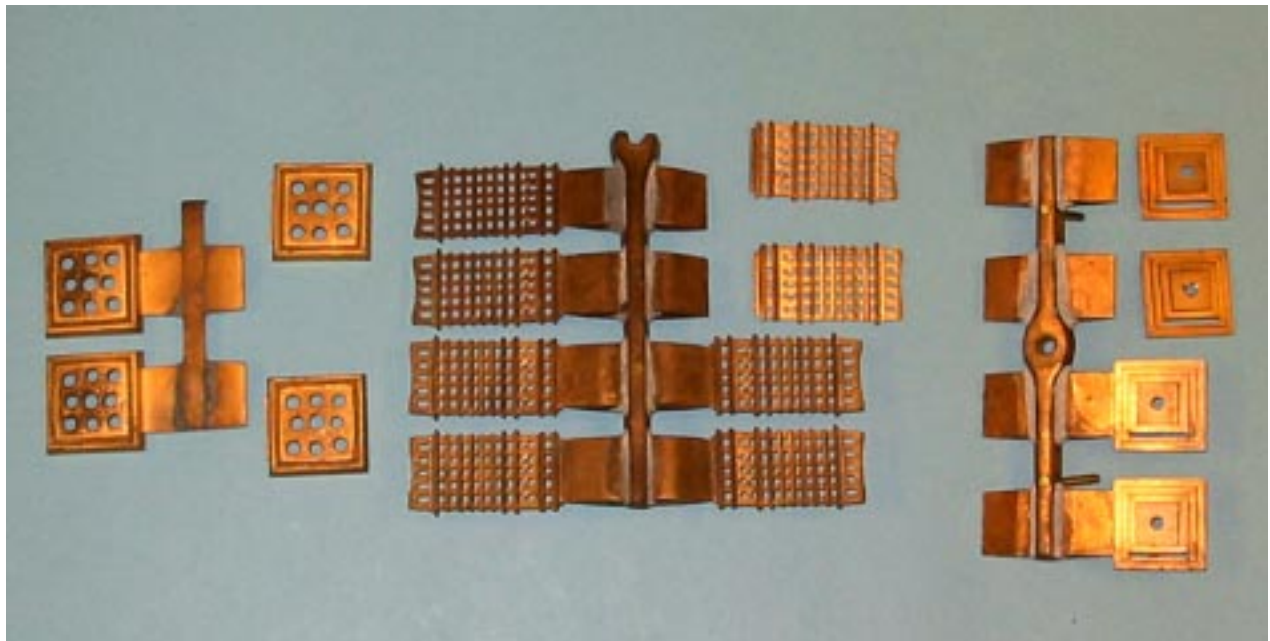


Photo 5. Partial pattern trees for the "High Rise Tiered" building bank, M-1218.

Photo 6 shows how the individual working patterns for the building sides have the gate incorporated. Notice how each working pattern was soldered to the runner to create the pattern tree. Also notice that when patterns have broken off their pattern trees separation occurred at the thinnest points of the gates. When iron castings were made these thin areas created weak points at which bank parts could be broken off the sprue.

These pattern tree examples have some features that were not discussed in Bill Robison's seminar or the *Penny Bank Post* paper. In Photo 5 notice that the pattern tree for the top of the bank has an "O" at the midpoint of the runner and there are two pins that project perpendicularly from the plane of the pattern tree. Photos 7 and 8 show these features in greater detail.

Bill Robison explained that each "O" forms a "pad" where the sprue would be cut in the mold. This widening of the runner at the intersection with the sprue allowed molten iron to flow more easily to the mold cavities.

The purposes of the hole in each "O" and the two pins were explained by John Mahon. After the sand mold was completed (see Figure 5(a) of the "Patterns and Molding of Cast Iron Still Banks" paper) a tapered wooden dowel was engaged in the hole. This allowed the molder to lift the pattern tree from the mold, and the pins ensured that it would come straight out. Both features reduced the chances that the mold would be disturbed when the pattern tree was removed. (Mahon believes that these features will not be found in pattern trees from all foundries.)



Photo 6. Close up that shows how the gates of each working pattern were attached to the runner of the pattern tree.

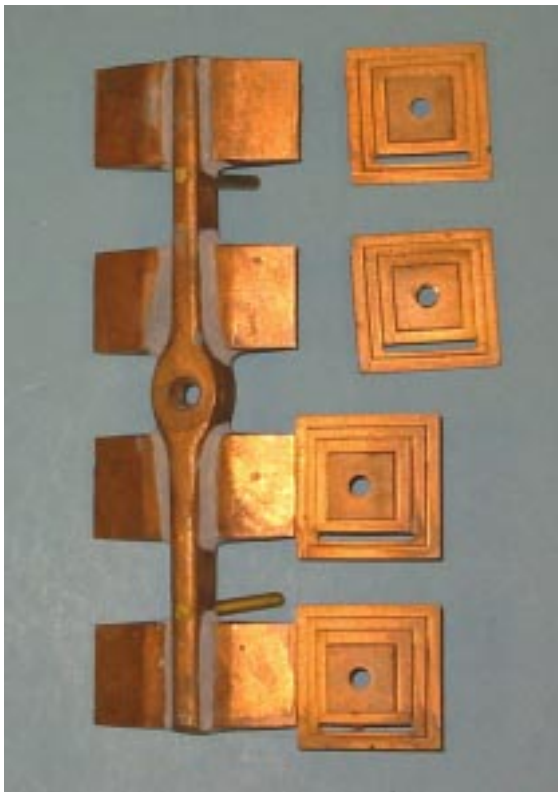


Photo 7. Pattern tree for the top of the "High Rise Tiered" building bank.



Photo 8. Pattern tree for the top of the High Rise building bank flipped over compared to Photo 7.

Match Molds

Photo 9 shows a match mold and Photo 10 the complimentary pattern tree. The mold probably is for the base of a toy stove; it does not correspond to the bases of any of the safes in the *Iron Safe Banks* book.³



Photo 9. This match mold is 16 1/2" wide and 13 1/2" deep. Including the standoffs on the base it is 2 3/4" high.



Photo 10. Pattern tree that is complimentary to the match mold in Photo 9.

Photo 11 shows the pattern tree in the match mold with a snap flask added. The flask is too small for the match mold but is shown nonetheless to illustrate the state depicted in Figure 3(a) of the *Penny Bank Post* paper. At this stage the molder would be ready to add a layer of facing sand and then to fill the mold with molding sand.



Photo 11. Match mold with the pattern tree in place.

If you look closely at Photo 10 and 11 you can see the "O" and the pins in the pattern tree. Notice that the pins project away from the match mold.

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References

- ¹ Fritz Kokesh, "Patterns and the Molding of Cast Iron Banks, Seminar by Bill Robison," *Penny Bank Post*, April 2003, p. 5.
- ² Andy and Susan Moore, "The Penny Bank Book: Collecting Still Banks," Schiffer Publishing Ltd., Exton, Pennsylvania, 1984.
- ³ Bob and Shirley Peirce, "Iron Safe Banks," Still Bank Collectors Club of America, June 1991, plus Updates by Larry T. Egelhoff.