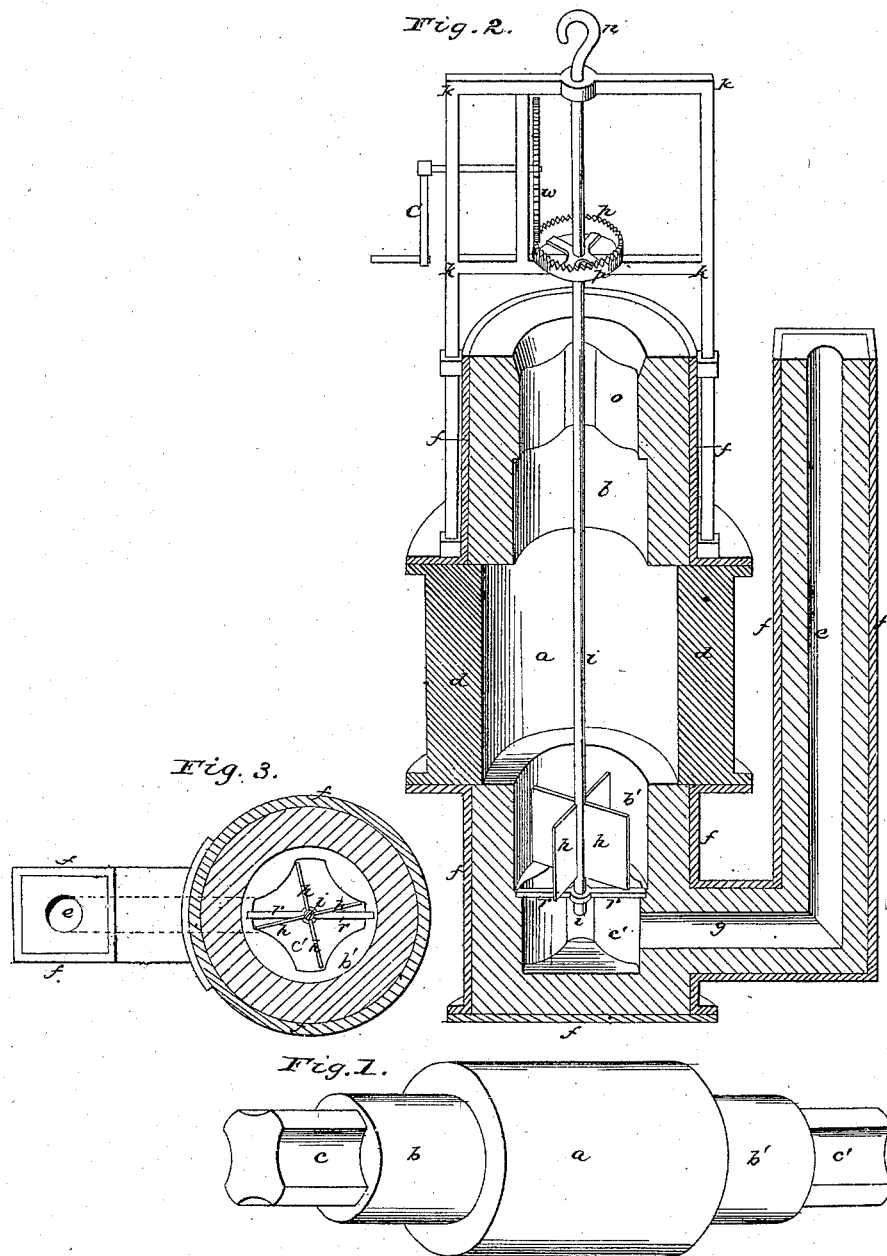


J. C. PARRY.  
METHOD OF GIVING ROTARY MOTION TO FLUID IRON IN CASTING ROLLS.  
No. 7,383.                      Patented May 21, 1850.



# UNITED STATES PATENT OFFICE.

JOHN C. PARRY, OF PITTSBURG, PENNSYLVANIA.

METHOD OF GIVING ROTARY MOTION TO FLUID IRON IN CASTING ROLLS.

Specification forming part of Letters Patent No. 7,353, dated May 21, 1850.

*To all whom it may concern:*

Be it known that I, JOHN C. PARRY, of Pittsburg, Pennsylvania, have invented a new and useful Mode of Giving a Rotary Motion to the Metal in Casting Chilled Rollers and other Metallic Rollers and Castings; and I do hereby declare that the following is a full and exact description thereof, reference being had to the annexed drawings, forming a part of this specification, in which—

Figure 1 is a perspective view of a chilled roller. Fig. 2 is a perspective view of a vertical section through the center of the mold and chill in which the roller is cast, representing one-half hereof, the mold and chill forming an intaglio impression of the roller, and also representing the fan or paddle and machinery for working the same. Fig. 3 is a horizontal section of the mold through the lower journal and above the gate, representing the position of the fan or paddle, corresponding parts in the several figures being represented by the same letters.

A chilled roller (see Fig. 1) is composed of the center or main part of the roll, (marked *a*,) the upper and lower journals, (marked *b* *b'*,) and the upper and lower couplings, *c* *c'*. The journals are cast in molds of sand (see Fig. 2) made in the flasks *f* *f*, which are clamped or fastened to upper and lower ends of an iron cylinder, called a "chill," (marked *d*,) A long pipe or runner, *e*, communicating with the gate *g*, conducts the melted metal into the lower part of the mold, either in the lower journal, *b'*, or coupling *c'*.

The fan or paddle *h*, Figs. 2 and 3, is made of cast or wrought iron, and is composed of four vanes or fans, which are placed at right angles to each other at the extremity of an iron rod, *i*, which is inserted in the mold and chill through the opening in the top, called the "sinking head," to the depth of the lower journal, *b'*, the end of the rod being kept in its place in the center of the mold by a slight iron rod, *r*, Figs. 2 and 3, with a circular ring or hole in its center, the rod *r* being sunk its own depth in the sand at the junction of the lower journal, *b'*, and coupling *c'*; or it may be placed in the bottom of the lower coupling, *c'*, sunk to its own depth in the sand, in which case the paddle *h* must not be lowered; but the rod *i* must be lengthened, so as to enter the ring in the rod *r*. The upper end of the

paddle-rod *i* rises out of the mold and passes through a frame-work, *k* *k*, which is attached to the upper flask, *f* *f*, which frame-work carries the wheel *w* and crank *l*. A pinion, *p*, which gears into the wheel *w*, is attached to the rod *i*, and carries it round with it. This pinion is so fixed that when requisite the rod *i* may be raised, so as to elevate the paddle *h* out of the mold, the rod slipping through the pinion without putting it out of gear. The rod is raised by a hook at the upper end, (marked *n*,) The vanes of the paddle *h* must not be too wide for the paddle to pass through the mold at the upper coupling, *c*.

The mold and chill in Fig. 2 (if the paddle *h* and frame *k* with its gearing were removed) would represent the ordinary mode of making heavy castings or rolls. The melted metal, descending the runner *e*, enters the mold through the gate *g*, and rises in the mold and chill till they are filled. This mode of casting has a tendency, however, to throw all the dross, slag, and lighter parts of metal to the surface or circumference of the casting, while the heavier and best portions of the metal are in the center, and, as in making chilled rolls, it is essential to have a good surface on the rolls, it becomes a matter of importance to throw the best and heaviest parts of the iron to the circumference, and to effect this a rotary motion must be communicated to the metal as it rises in the mold and chill. This rotary motion was formerly obtained by simply stirring the metal by hand with a rod or stick; but this method was attended with danger, and was inconvenient, difficult in its operation, and uncertain in its results.

My invention consists in a new and useful mode of communicating this requisite rotary or swirling motion to the melted metal, which I effect by means of the paddle or fan *h*, (see Figs. 2 and 3,) which is fixed and attached to the rod *i* in the mold, as before described. This paddle is caused to revolve by turning the crank *l*, carrying the wheel *w*, which moves the rod *i*, to which the paddle is attached. The paddle turns round in the lower journal, *b'*, and the melted metal, entering the mold in the lower coupling, *c'*, meets the paddle as it rises in the mold, and by the action of the vanes turning round in the rising metal produces a complete swirl or rotary motion which continues until the roll is cast.

When the roller is cast, and before the metal has time to cool, the rod *i* and paddle *h* are elevated completely out of the mold by means of the hook *u*, as before described, and the gate *g* is knocked off when the casting is cold in the usual manner.

What I claim as my invention, and desire to secure by Letters Patent, is not the use of rotary motion in casting chilled rollers, for that has been long before known and used; but

What I do claim as my invention is—

The combination of the paddle or fan *h* with the rod *i* and rod *r* and the frame-work and gearing for giving motion to the fan for the purpose of producing the rotary motion of the iron in casting chilled rolls and similar castings.

JOHN C. PARRY.

Witnesses:

R. A. BAKEWELL,  
WM. BAKEWELL.