Graves & Gordon,

Casting Chilled Rolls.

No. 5,528. Patented Apr. 25, 1848.

Fig: 2.

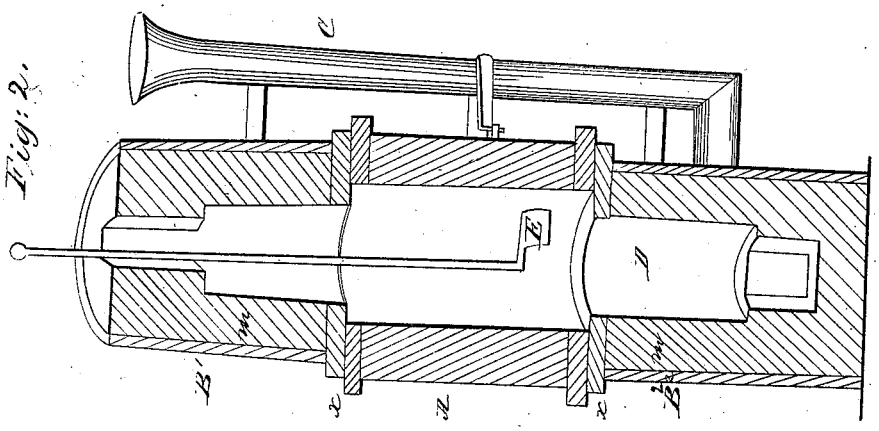


Fig: 3.

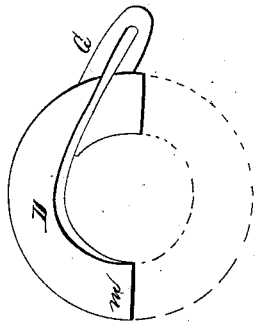
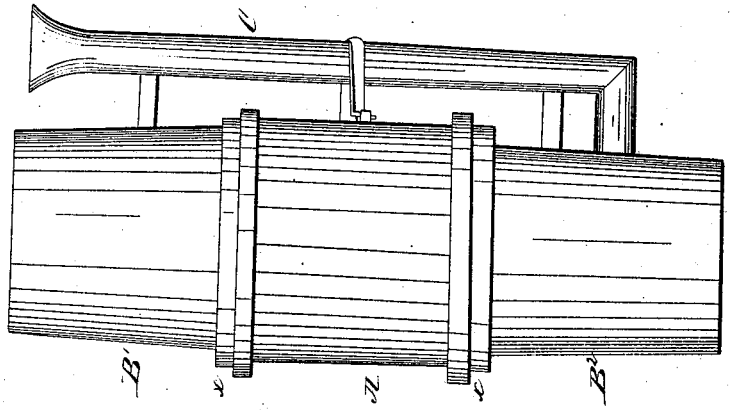


Fig: 1.



UNITED STATES PATENT OFFICE.

WM. L. GORDON AND JOSHUA GRAVES, OF BRIDGEWATER, MASS.

IMPROVEMENT IN CASTING ROLLS.

Specification forming part of Letters Patent No. **5,528**, dated April 25, 1848.

To all whom it may concern:

Be it known that we, WILLIAM L. GORDON and JOSHUA GRAVES, of Bridgewater, in the county of Plymouth and State of Massachusetts, have invented a new and useful Improvement in Casting Chilled Rolls; and we do hereby declare that the following is a full and exact description.

We apply our improvements to the apparatus in common use. The following is a short description of their connection when prepared for use. When the molds for the necks and squares have been made, the parts are put together, and appear as represented in Fig. 1. The flasks B′ B² are fastened to the cylinder A by iron pins through their flanges, (marked *x x x x.*) The tube C is fastened to the flasks and cylinder by a staple and braces. The cylinder is the mold for the body of the roll, and chills and hardens it. The sand (see Fig. 2, *m m*) does not harden the necks and squares. The short horizontal part of the tube enters the flask B², but not the sand. It has, previous to our improvement, always been directed toward the center of the mold. The gate or gates through the sand and entering the mold have been variously directed, some approaching toward a tangent; but in all of them the iron has changed its direction after it has descended to the horizontal part of the tube before it has entered the mold, and has been impeded thereby, which impediment is removed by changing the direction of the horizontal part of the tube from the center of the mold to a tangent, and making the gate or channel in the sand correspond in direction until it becomes a tangent to the mold, which is equal to if not beyond any which we believe has been made use of, and it is deeper in the sand there than has been previously used. The tube C in Fig. 1 receives the iron to fit the mold. Such a change we have put into practice, with the addition of a continuance of the gate about one-fourth part of a circle further gradually diminishing in depth and breadth. It is seen in Figs. 2 and 3 at D.

Fig. 3 is a section of the passage horizontally from the upright tube into the mold. The sand where it enters the mold is sufficiently taken away until a sufficient thickness is obtained to bear the pressure of the iron. The uninterrupted stream in such a gate causes a more powerful circular motion to the superambient iron than had been previously produced. This direction of tube and form of channel is of our invention, and is of use in combination with the instrument which we call a "skimmer," but is not used as skimmers usually are. The circular motion does not cause the scoria to pass round without contact and adhering to the cylinder; but the more forcible it is the more effectual will be our application of the skimmer. Their combined effect has much improved rolls.

The skimmer is represented in Fig. 2 at E in the cylinder, but is first placed at the bottom, and when the iron has risen into the cylinder and up a little on the blade of the skimmer it is kept a little in the iron until it rises to the neck and then taken out. Its form of connection with the handle is necessary in consequence of the mold for the neck being smaller than the cylinder. The thin edge is kept to the cylinder and prevents the iron from passing between them. The back is thicker and joined to the handle. It is to be turned a little from the cylinder toward the center, which will ward off the scoria and direct it toward the center. It is drawn up in a vertical line not directly over where the iron enters the mold, but at about one-fourth of a circle from it, on that side where it would require the iron to pass three-fourths of the way round to meet it. This is a good position for it.

Fig. 2 is a perspective section lengthwise and through the diameter of the flasks and cylinder, with the mold for a roll in them, the body in the cylinder A, the necks in sand *m m*. Fig. 3 is a section of the flask B², horizontally, when standing upright, the horizontal part of the tube at G in its oblique and angular position, the gate at D, and the sand at *m* in the flask.

What we claim, and for which we ask Letters Patent, is—

The improvement in the position of the tube through which the iron passes to the mold, the improvement in the construction of the gate, and the application of the skimmer, as described, all combined as represented by the specification and drawings, for the purpose of turning the scoria from the cylinder in which the roll is chilled.

WM. L. GORDON.
JOSHUA GRAVES.

Witnesses:
ARTEMAS HALE,
ARTEMAS HALE, Jr.