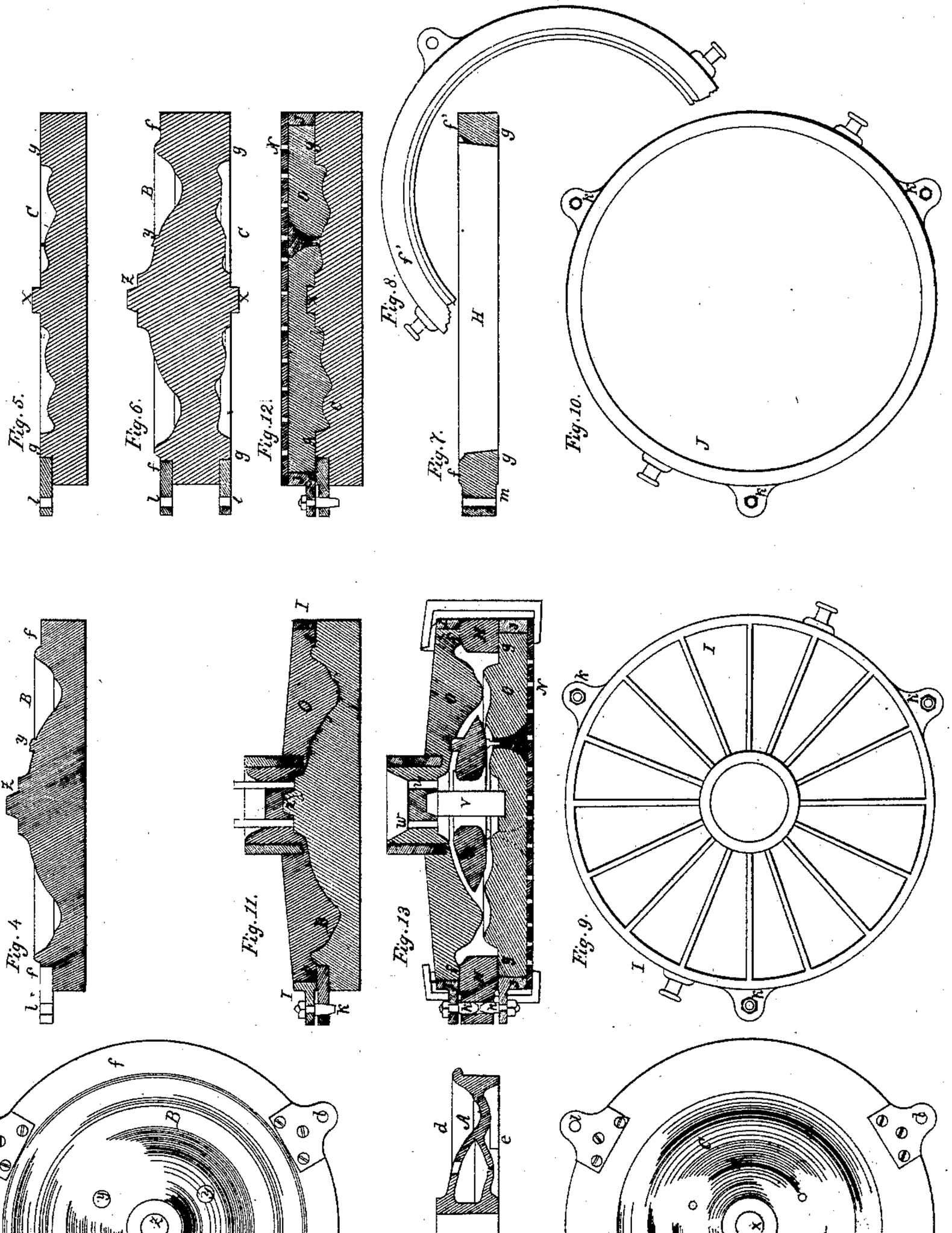
G. S. Bosworth,

Car Wheel,

No. 30,525. Patented Oct. 30, 1860.



Witnesses
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GEORGE S. BOSWORTH, OF TROY, NEW YORK.

IMPROVEMENT IN MOLDING CAST-IRON WHEELS.

Specification forming part of Letters Patent No. **30,525**, dated October 30, 1860.

To all whom it may concern:

Be it known that I, GEORGE S. BOSWORTH, of the city of Troy, in the county of Rensselaer and State of New York, have invented a new and useful Improvement in Molding Cast-Iron Car and other Wheels with Chilled Rims, whereby the requisite molds for casting such wheels can be made by less skillful workmen and more expeditiously, and at less expense than previously; and I do hereby declare that the following is a full and exact description thereof, reference being had to the annexed drawings, making a part of this specification in which the same letters of refence indicate like parts in all the figures.

Instead of employing but one pattern of the same form as the whole exterior of the wheel A to be cast (shown in section by Fig. 1) in the manner commonly practiced in making molds for casting in one piece car-wheels with chilled rims I use in making such molds two face-patterns, B C, (shown in plan by Figs. 2 and 3, separately in section by Figs. 4 and 5, and together in section by Fig. 6,) one of which face-patterns, B, is of the same form as one face, *d*, of the wheel, and the other, C, of the form of the other face, *e*, whatever form the faces of the wheel may have, both face-patterns having immediately around the outer edges of those parts which are in the form of the faces of the wheel, annular surfaces *f g*, of the same form as the corresponding parts, *f' g'*, of the chill H, (shown in section by Fig. 7, and partially in plan by Fig. 8,) which chill I also employ, together with two flasks, I J, (shown in plan by Figs. 9 and 10.) The face-patterns B C also have whatever projections *z y x* are required to make the necessary core-prints, if any cores are used in casting the wheel; also, the outer portion of one face-pattern, B, is formed to fit one of the flasks, I, and of the other, C, to fit the other flask, J, substantially as shown in Figs. 11 and 12, the flasks and face-patterns being held in place when put respectively together by steady-pins *k* and corresponding holes, *l*, or by other suitable or equivalent means. The flasks I and J also fit upon the corresponding sides, *f' g'*, of the chill, as shown in section by Fig. 13, and the chill is held in place between the flasks by steady-pins *k* and holes *m*, or by equivalent devices.

In making molds for casting wheels with chilled rims by means of the face-patterns B C, flasks I J, and chill H in connection, each flask is placed upon the face-pattern which belongs to it, and is then rammed up full of sand, as represented by Figs. 11 and 12, and a bottom board, N, applied to the lower flask to hold the sand O therein. Next, each flask, clamped to its respective face-pattern, is turned over. Then each pattern is lifted off from its flask and the molds "dusted." Next, each face-pattern is pressed or printed back upon its mold and then withdrawn, in order to remedy any defects therein and to leave the molds with the proper smooth surface for receiving the metal. The in-gates *w* being previously formed in the upper mold, and the cores *v w*, if any are used, being set in the lower mold, the chill is then placed upon the latter, and the upper mold placed upon the chill, so as to complete the mold, as shown by Fig. 13.

It is plain that the two face-patterns can be used if they are both formed upon the same side or upon opposite sides of a single block. Such changes are, however, mere modifications of my invention, and would readily occur to any competent molder and pattern-maker, and I greatly prefer to have the chill separate from each flask, and to have the face-patterns each on a separate block. It is also apparent that disk-wheels of different thicknesses may be cast by the use of the very same patterns and flasks when the patterns are face-patterns B C by merely using chills of different depths; and this is a consideration of some importance in manufacturing car-wheels for roads which require or use wheels of different thicknesses; but it cannot be done with the patterns in common use. Again, the face-patterns which I use can be made so as to be less liable to become winding when made, as commonly, of wood, than the patterns heretofore used, and if the face-patterns B C do get warped or damaged on their faces they can be turned off or otherwise made true without altering the thickness of the wheel made from them; but this cannot be done with a single pattern of the form of the whole exterior of the wheel.

In using the two face-patterns the steady-pins serve as guides, so that there is no diffi-

culty in printing the patterns back upon the molds to remedy defects therein. Consequently the molds do not require to be "slicked off" by hand, and, therefore, workmen can readily make the molds by my improved mode who are not qualified to make them by the method commonly practiced, wherein the pattern cannot be printed back upon the mold with profit.

I am aware that it is not new to employ face-patterns in connection with flasks merely in making molds for casting stove-plates and like articles, and that it is not new to merely use a frame between two sand molds to separate them so that a casting can be made in the molds and within and of the same depth as the said frame, and that the mere employment of two flasks in connection with a chill is not new in making molds for casting car-wheels; but I do believe that it is new to employ the two face-patterns B C, two flasks, I J, and chill H, all three in combination or connection as above specified, and illustrated by the annexed drawings, and by thus using them all in connection in making molds for casting car-wheels with chilled rims in I am enabled to make such molds much faster, generally better, and with far less labor and expense than by the method in common use, and can, therefore, manufacture such wheels at a cheaper rate than they have been heretofore made.

Having thus shown the manner of practicing my invention, what I claim is—

Forming a mold by means of a flask, consisting of three parts, to wit: a cope, a nowel or drag, and cheeks or chill, the two former being open to ram up the sand to form the mold on face-patterns which can be printed back, the mold being formed in the manner and by the means set forth, and the thickness and weight of the wheel being determined by the depth of the cheeks, which can be varied in the same sized wheel and with the same pattern and same cope and nowel.

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Witnesses:

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