

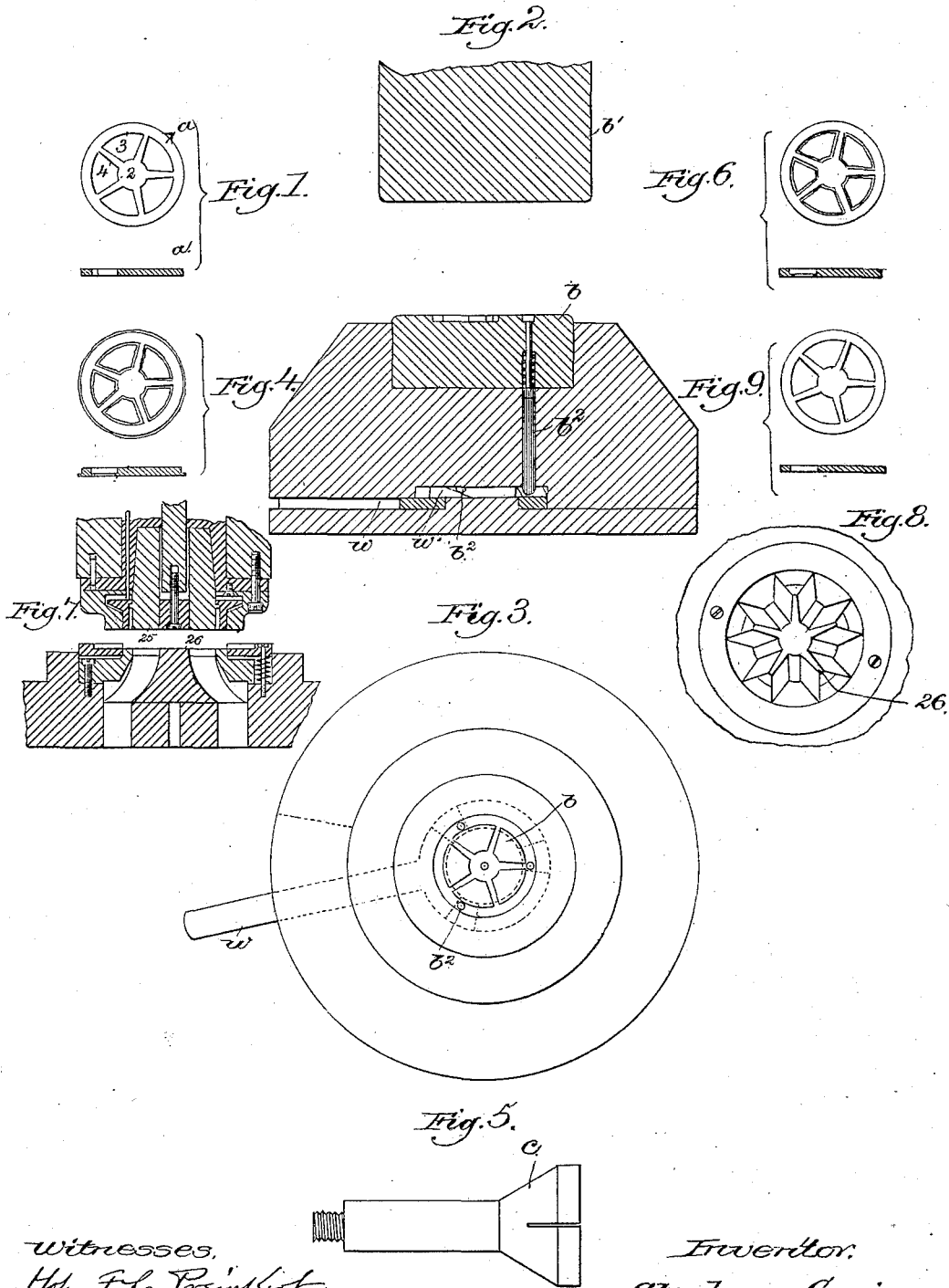
(No Model.)

A. CRAIG.

MODE OF FINISHING WHEEL BLANKS.

No. 374,142.

Patented Nov. 29, 1887.



Witnesses,  
John F. C. Printz  
Fred L. Emery

Inventor,  
Abraham Craig,  
by Leroy H. Gregory attys.

# UNITED STATES PATENT OFFICE.

ABRAHAM CRAIG, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO THE BOSTON  
CLOCK COMPANY, OF SAME PLACE.

## MODE OF FINISHING WHEEL-BLANKS.

SPECIFICATION forming part of Letters Patent No. 374,142, dated November 29, 1887.

Application filed January 25, 1887. Serial No. 225,439. (No model.)

*To all whom it may concern:*

Be it known that I, ABRAHAM CRAIG, of Boston, county of Suffolk, and State of Massachusetts, have invented an Improvement in Methods of Finishing Blanks for Wheels, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention has for its object to finish a cast blank for a wheel or gear with greater speed and much more cheaply than has heretofore been done.

The invention consists in forcing the cast blank into a die of the desired shape, then turning or cutting off flush the fin or edge projecting from the periphery of the blank and formed by compressing the blank in the die, and, lastly, cutting off the fin or projecting edge from the sides of the openings made through the blank, all substantially as will be described.

In order more concisely to set forth my invention, I have selected a wheel as the article to be described. I may here remark, also, that the castings to be treated in accordance with my invention are of soft metal—such as brass—and they are acted upon while cold.

Without thereby limiting the invention to its application solely to the manufacture of wheels, I will now proceed more particularly to explain the principle and operation of my invention.

The die herein shown is provided with suitable recesses to receive a cast blank having a central hub, an outer rim, and several connecting-spokes. The blank is forced into the die, which is of like shape, but slightly smaller, and as the result the surplus metal is thrown out as a fin extended more or less around all parts of the blank, and thereafter the fins are cut off. For cutting the fins or projecting portions from the openings within the wheel I employ a cutter such as is now used by mechanics, but provided with suitable blades; but the fin or edge at the periphery of the rim is preferably cut off in a lathe, the blank being properly centered therein and rotated.

I may here state that the fins formed on wrought-metal articles in die-forging are removed by cutters or in a lathe; but my inven-

tion has no reference to operations on wrought metal, but relates solely to finishing cast articles, particularly wheels.

Figure 1 shows a plan view and section of a cast blank for a wheel or gear; Fig. 2, a vertical section of a part of a plunger and a die into which the cast blank is forced; Fig. 3, a top view of the die shown in Fig. 2, the plunger being removed. Fig. 4, a plan and section of the blank after it is removed from the die; Fig. 5, a side view of the chuck of a lathe upon which the blank is then placed; Fig. 6, a plan and sectional view of the blank after the outside fin has been removed by the cutting device of a lathe; Fig. 7, a vertical section of a portion of a cutter for cutting the fin from within the spokes; Fig. 8, a plan view of the cutter-bed shown in Fig. 7, and Fig. 9 a plan and sectional view of the blank after the fins or edges projecting from the sides of the openings within the blank have been removed.

The blank *a*, cast in usual manner, and herein shown as comprising a central hub, 2, rim 3, and spokes 4, is placed above the die *b*, (shown in plan view, Fig. 3,) and by a suitable plunger, *b'*, (see Fig. 1,) is forced into the said die. By this operation the surplus material of the blank is caused to project from the edges thereof as a sharp fin. The blank is then removed from the die *b* by a series of pins, *b<sup>2</sup>*, placed within the die and its base-plate, the said pins being raised by a lever, *w*, the hub of which has several beveled faces, *w'*, one of which is adapted to bear against the lower end of each pin. The blank, when removed from the die *b* will be found to have projecting fins, as best shown in Fig. 4. This blank is then taken to a lathe having a suitable chuck, *c*, (see Fig. 5,) to hold the blank while the fin at the periphery of the rim 3 of the blank is cut off, leaving the blank as shown in Fig. 6. The blank is then removed from the lathe and placed in a cutter of ordinary construction, as shown in Figs. 7 and 8, the cutter (shown in Fig. 7,) entering the spaces between the spokes 4 and rim 3 of the blank and co-operating with the bed 26 to cut off the fins or edges projecting from the hub and spokes and inner edge of the rim, thereby leaving a smooth finished blank. The blank

may be afterward polished in any usual manner, or may, if desired, be cut by any suitable gear-cutting device to form a toothed wheel or gear.

5 I claim—

The improvement in the art of manufacturing articles of cast soft metal, the same consisting in first casting the blank, then, when cold, forcing the same into a die to give the  
10 ultimate finished shape, and then turning or

cutting off the fin or edge previously made, substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ABRAHAM CRAIG.

Witnesses:

G. W. GREGORY,  
F. L. EMERY.