C. McCammon,

Casting Ingots.

No. 27,141. Patented Feb. 14, 1860.

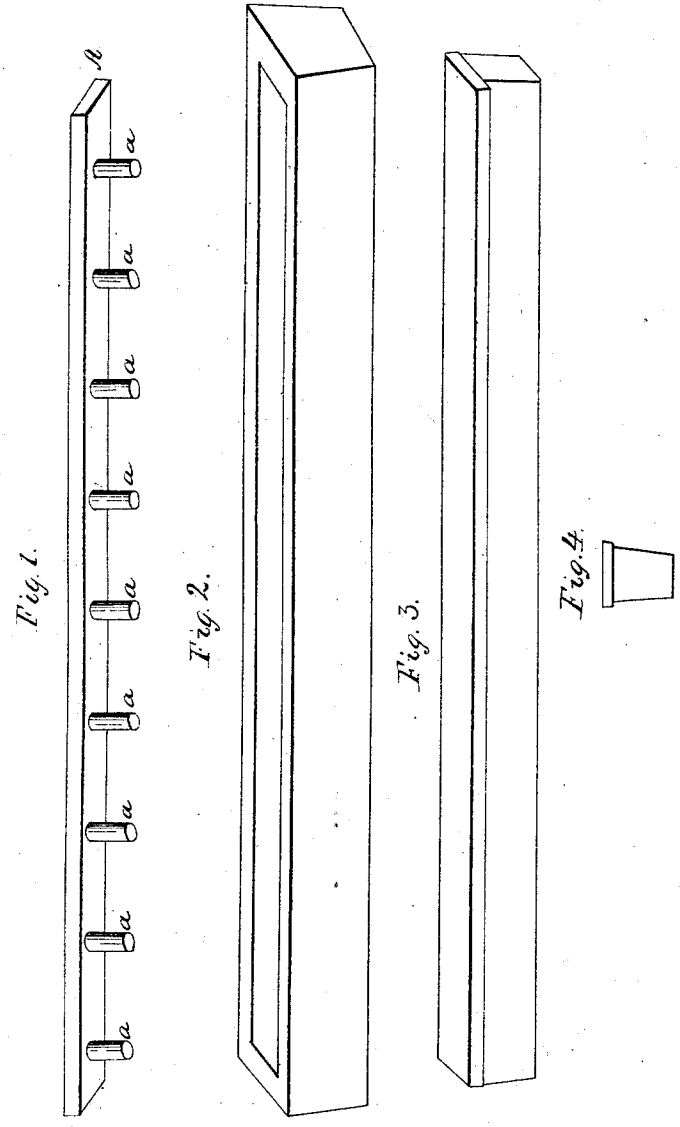


Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

Witnesses;

R. Wm. Dewitt

A. V. Dewitt

Inventor;

Charles McCammon

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UNITED STATES PATENT OFFICE.

CHARLES McCAMMON, OF ALBANY, NEW YORK.

IMPROVEMENT IN CONSTRUCTING BARS OF CAST AND WROUGHT IRON.

Specification forming part of Letters Patent No. **27,141**, dated February 14, 1860.

To all whom it may concern:

Be it known that I, CHARLES McCAMMON, of the city of Albany, State of New York, have invented a new and useful method of constructing bars of iron for mechanical purposes by a combination of wrought and cast iron; and I declare the following specification, with the drawings hereto annexed as part thereof, to be a full and accurate description of my invention.

I am aware that the process of uniting wrought and cast iron for the purpose of combining the tenacity of the one with the hardness of the other is no novelty.

The introduction of wrought-iron rods into the rims of cast railroad-car wheels is one form in which it has been done, and bars of wrought-iron have been inserted into castings with a considerable portion of their substance embedded therein, and these have proved serviceable measurably and under certain circumstances in producing the desired effect; but where such compound bars have been exposed to strong vibration or jars they have failed, and their fractures have revealed the fact that a close combination or adhesion of the separate materials has not taken place. This is attributable to the circumstance that when the red-hot iron surrounds or comes extensively into superficial contact with the comparatively cold iron, its heat immediately produces expansion of the wrought-iron, the expansion commencing and progressing just when the cast metal begins and continues to contract, and this is peculiarly the case when the wrought-iron bears a large proportion toward the cast metal. The result must be an imperfect adhesion of the two separate elements of the bar.

My invention is intended to remedy to a great degree, if not entirely, this evil. To this end I take the wrought-iron bar, Figure 1, A A, intended to form one element of my compound bar and secure to it, by any of the usual devices, studs or projecting pins *a a*, placed at short intervals from each other, and long enough to reach nearly to the bottom of the proposed bar. (These pins may be a little the thickest at their bottoms, or be placed in an inclined position, if it be deemed any advantage.)

To form the lower part of the bar I use a metal chill mold, Fig. 2, conformed to the shape of the intended cast part of the bar. The wrought-iron bar is to be placed upon the chill and secured with the studs or pins projecting down within it, and thus forms a cope or cover to the chill, so that the hot iron when introduced therein by the usual methods shall fill the chill up to the bottom of the wrought bar, enveloping the studs and closing firmly around them as it cools. The small size of the studs enables them to absorb heat promptly from the hot iron and almost immediately become equalized in temperature with it, so as to cool and shrink simultaneously with the melted mass. The result will be the production of the bar shown in perspective in Fig. 3, and endwise in Fig. 4.

I do not limit myself to any form of the bar to be made by the process, since I propose to apply it in the construction of sleigh-shoes and similar wares wherever protecting-bars may be exposed to sudden jolts and shocks liable to break cast iron or steel. I propose, also, to use my process in the manufacture of railroad-bars or any part of their track-work, and for any analogous purposes. It is also manifest that studs may be produced from the wrought bar by partially punching out and downward slips of the metal, which method I propose to use if most advantageous.

What I claim is—

The combining of wrought-iron with cast-iron in the formation of bars by the process and for the purposes set forth and described in the within specification.

CHARLES McCAMMON.

Witnesses:

RICHD. VARICK DE WITT,

A. V. DE WITT.