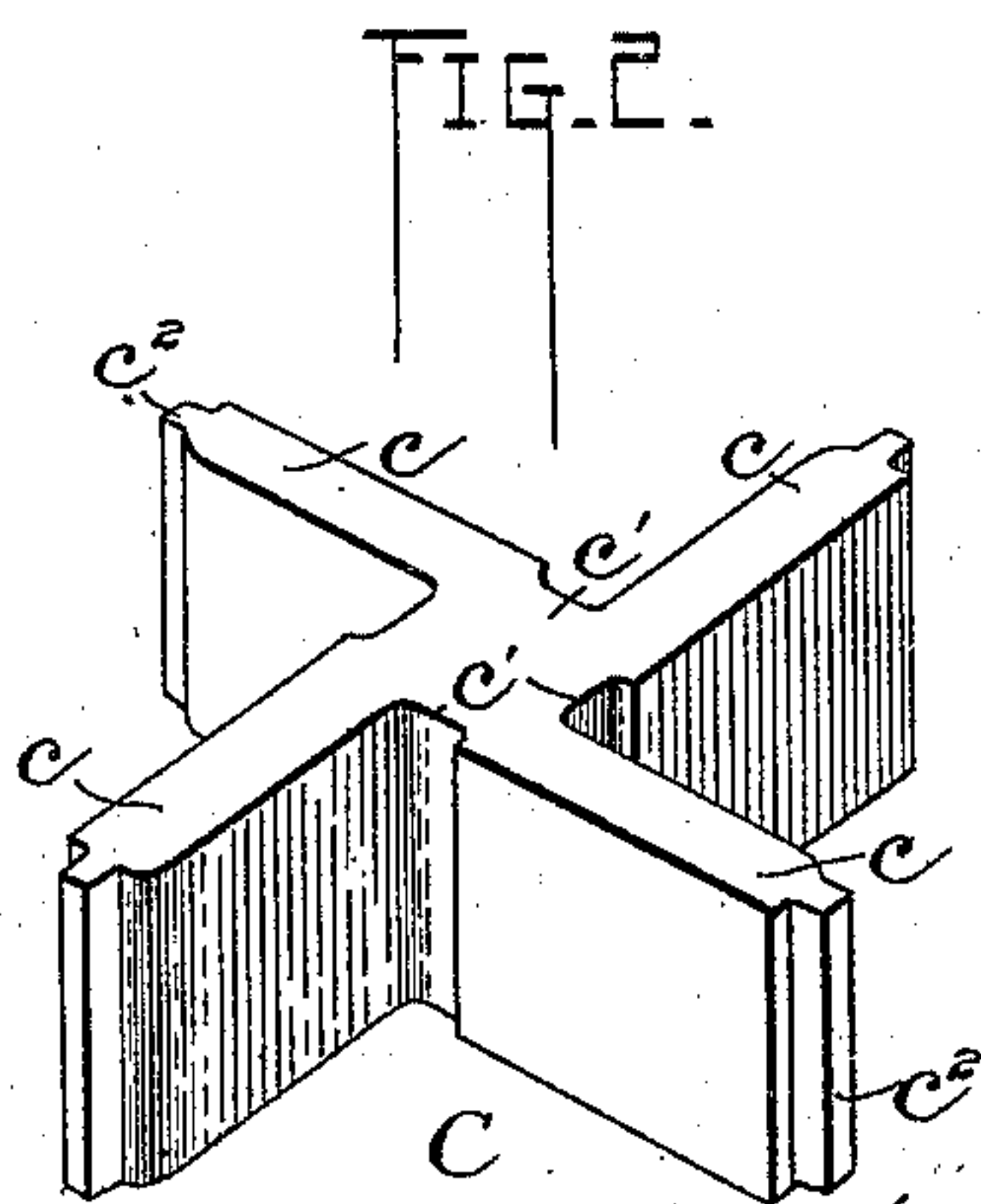
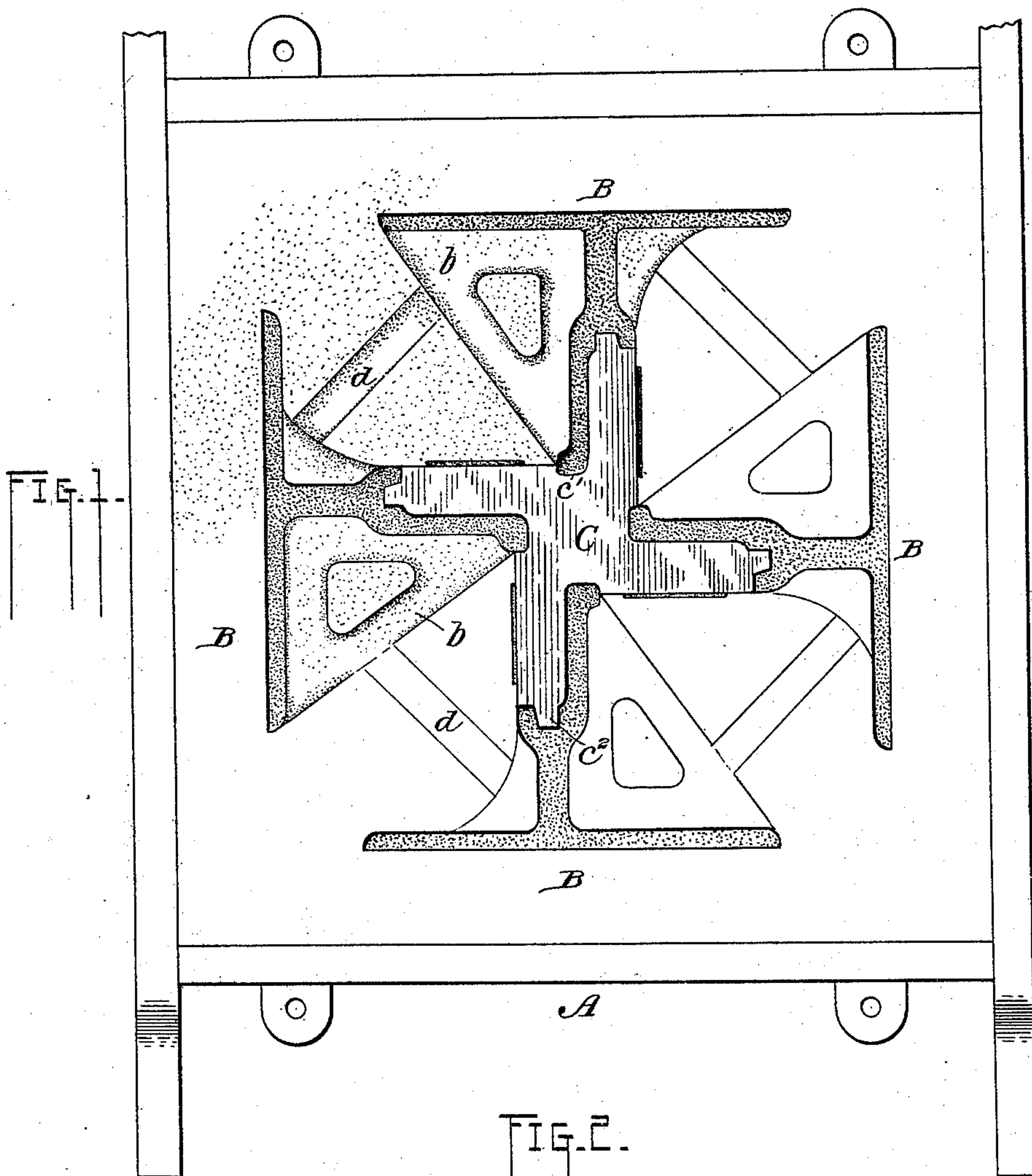


(No Model.)

T. E. TWIST.  
MOLD.

No. 445,737.

Patented Feb. 3, 1891.



WITNESSES

L. A. Conner Jr.  
J. H. Brown

INVENTOR

Thomas E. Twist  
by Butterworth, Hall & Brown  
his Attorneys.



# UNITED STATES PATENT OFFICE.

THOMAS EDWIN TWIST, OF MILTON, PENNSYLVANIA.

## MOLD.

SPECIFICATION forming part of Letters Patent No. 445,737, dated February 3, 1891.

Application filed November 6, 1890. Serial No. 370,530. (No model.)

*To all whom it may concern:*

Be it known that I, THOMAS EDWIN TWIST, a citizen of the United States, residing at Milton, in the county of Northumberland and State of Pennsylvania, have invented certain new and useful Improvements in the Manufacture of Chairs for Railroad-Rails; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to the manufacture of chairs for railroad-rails; and the object of the invention is to provide improved means by which a number of chairs may be cast or formed at a single operation.

To this end my invention consists of the improvements hereinafter described, and particularly pointed out in the claims at the end of this specification.

In the drawings, Figure 1 represents the upper section or cope of an ordinary flask inverted, showing the mold after the withdrawal of the pattern and the chill in position; and Fig. 2 is a perspective view of my improved combination-chill.

The letter A in Fig. 1 represents the cope or upper section of an ordinary flask inverted, the drag or lower section of the flask being removed, and B B the matrices or cavities in the mold for forming a series of chairs at a single operation.

C represents the chill, which is preferably a cast-iron cruciform structure, having several arms *c c* united to a main body portion, which is recessed at *c' c'* to form the head or upper portion of the chair. These several arms each terminate in a projecting rib or flange *c<sup>2</sup>*, which forms a recess in the casting, having a lip which overlaps the web of the rail which fits into the socket formed by said recess and lip in the manner indicated by the arms of the chill, as shown in Fig. 1; but the number of arms of the chill and the general arrangement of the parts may be modified in an obvious manner without departing from the spirit of my invention, and although I preferably use a chill having pairs of oppositely-extending arms, as shown in the drawings, it is apparent that similar advantages would result if the chill had a greater or less number of arms, it being necessary, however, to use at

least three arms, so as to cause the same to support each other and prevent displacement of the chill in the process of molding.

In the construction shown in Fig. 1 the pattern used for forming the mold resembles in general outline the figure formed by the several matrices B B, together with the solid cruciform structure C representing the chill and having the triangular portions or wings represented by the letters *b b*, which connect the web and flange of the chair so as to form the supporting braces or flanges of the same, and also the strips or braces represented by the cavities *d d*, which form the gateways or channels leading from the sprue to the several matrices.

It is manifest that the pattern may be varied according to the shape of the chair to be produced and the number it is desired to form at one operation without departing from the essential features of my invention; but I have found the cruciform structure of pattern and chill the most convenient in practice, and preferably use a pattern and chill of the described construction for the purpose of manufacturing chairs of the type illustrated in Patent No. 366,545, dated July 12, 1887; but of course my invention is not limited to the manufacture of chairs of any specific type.

By this invention it will be seen that a number of chairs may be formed in a single operation and in a simple and effective manner as compared with methods of production heretofore in use.

I am aware that in the manufacture of chairs for railroad-rails various contrivances have heretofore been devised for the purpose of molding chairs, and it has been proposed to mold more than one chair at a single operation; but in all such contrivances it has been found in practice that in pouring the metal into the molds the chill would often either be overturned or thrust to one side or the other of the mold, so that the operation has either been a total failure or the finished article has varied in width and thickness, differing essentially from the pattern and so unevenly formed as to render the same unfit for use, rendering the process of manufacture tedious and expensive by reason of the loss of time and material resulting from a frequent failure in practice to produce the desired results,



and it is the object of my invention to overcome these difficulties by providing an apparatus which will be reliable in operation and by which a series of chairs may be formed  
5 at a single operation, which results are accomplished by providing a chill-core composed of a main body portion having a plurality of arms, preferably in the form of a cross extending laterally from such main portion, so  
10 as to afford a support for the same in all directions, and thereby prevent the chill from being overturned or moved out of its proper position by the molten metal without the necessity of using any auxiliary support for the  
15 chill, as has been necessary with devices heretofore in use.

Having therefore described my invention, I claim as new and desire to secure by Letters Patent—

20 1. In the manufacture of chairs for railroad-rails, the combination of the flask, the mold, and the chill, which consists of a main body portion provided with three or more arms, which extend laterally therefrom and

are adapted to form the recesses or seats for 25 the rails in the upper portions of the chairs, substantially as described.

2. In the manufacture of chairs for railroad-rails, the combination of the flask, the mold, and the chill, which consists of a main 30 portion recessed to form the heads of the chairs and having pairs of oppositely-extending arms which terminate in ribs or flanges adapted to form sockets to receive the web of the rail, substantially as described. 35

3. In the manufacture of chairs for railroad-rails, a cross-shaped chill-core having its main body portion provided with recesses to form the heads of the chairs and having 40 arms which terminate in ribs or flanges adapted to form sockets to receive the web of the rail, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

THOMAS EDWIN TWIST.

Witnesses:

GEO. STRAYER,  
JOS. ANGSTADT.