

No. 887,848.

PATENTED MAY 19, 1908.

E. R. ROBINSON.
CAST IRON AXLE.
APPLICATION FILED FEB. 6, 1907.

Fig. 1.

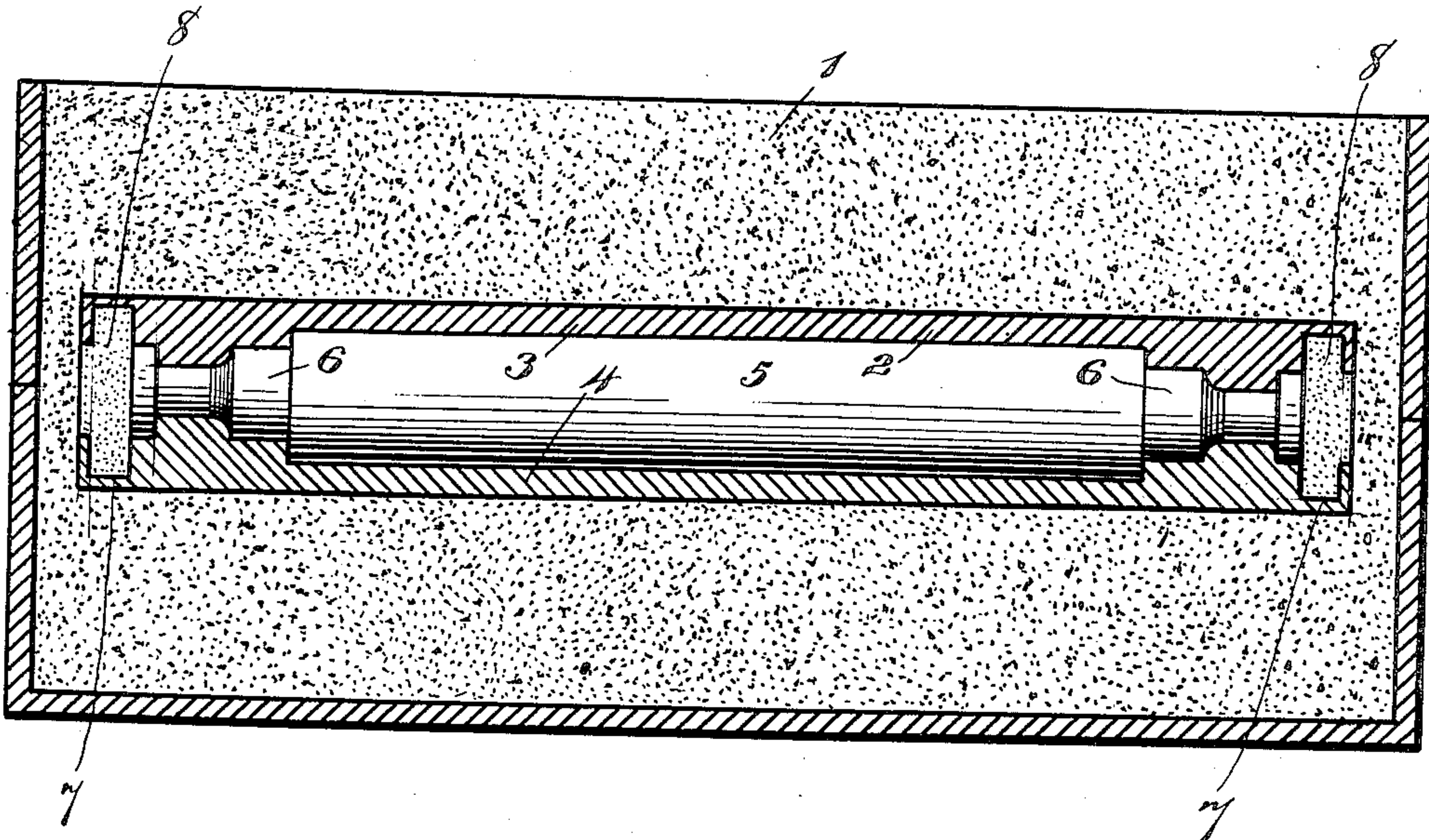
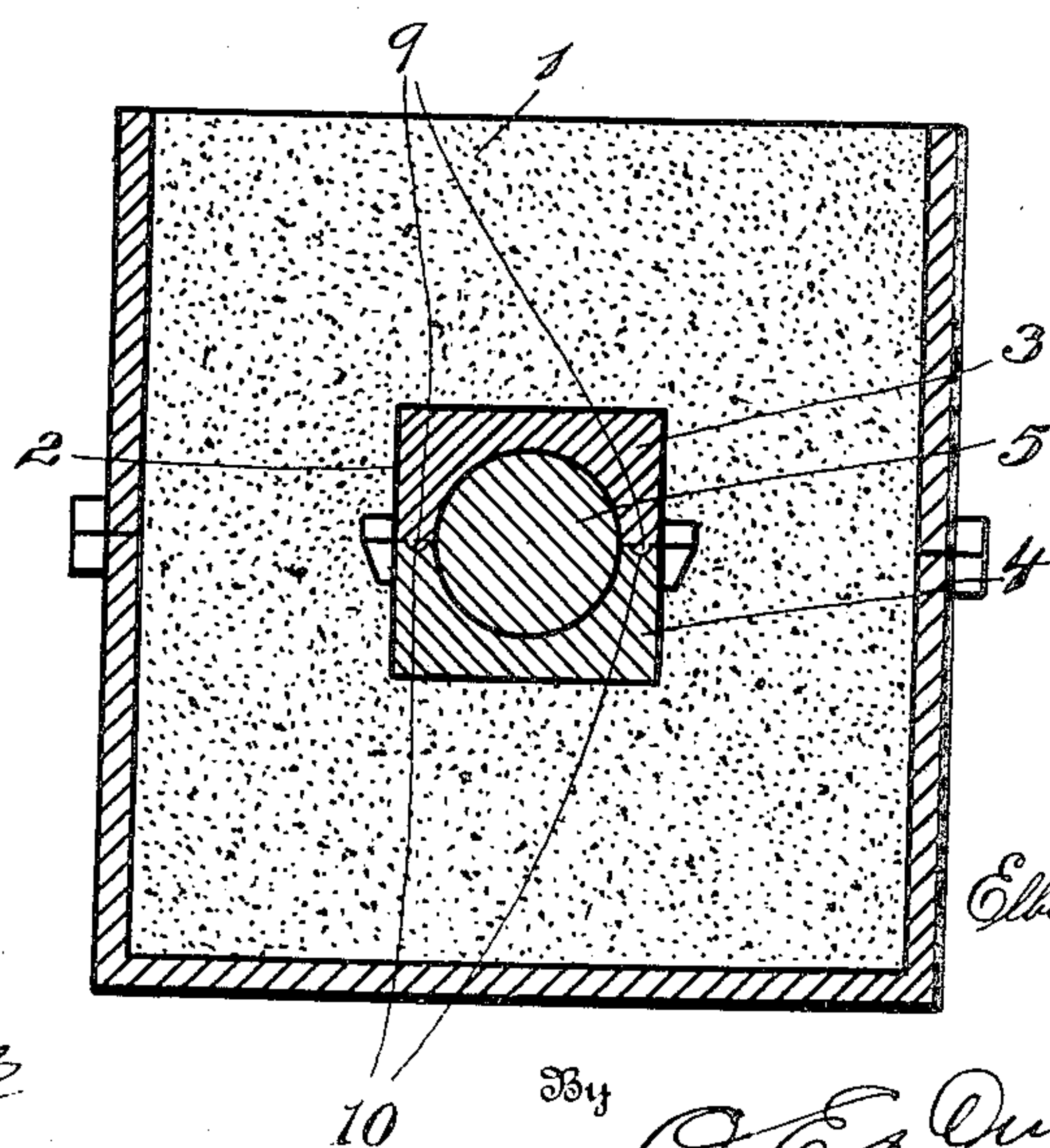


Fig. 2.



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ELBERT R. ROBINSON, OF CHICAGO, ILLINOIS.

CAST-IRON AXLE.

No. 887,848.

Specification of Letters Patent.

Patented May 19, 1908.

Application filed February 6, 1907. Serial No. 356,037.

To all whom it may concern:

Be it known that I, ELBERT R. ROBINSON, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Cast-Iron Axles; and I do 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, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention relates to axles, and has for its object to provide a device of this class which is cast of molten metal in such manner that the outer surface of the axle is chilled and hardened and the middle portion of the axle is made soft by annealing to such a degree that it becomes tough and cannot be easily broken, while at the same time the chill is of such a character on the journal that it will outwear the usual steel axles now in universal use. With this object in view my invention consists in the hereinafter described method of making the axle.

Referring to the accompanying drawing: Figure 1 is a vertical section showing chill embedded in sand, and Fig. 2 is a transverse sectional view showing chill embedded in sand and cast axle in the chill.

Like numerals of reference indicate the same parts throughout the several figures in which,—

1 indicates the sand in which the chill 2 is embedded, said chill having two sections 3 and 4 suitably secured together in order to make the axle perfectly true so that no turning of the journals is required, or it can be molded without inserting the chill box in sand.

5 indicates the axle and 6 indicates the journals.

As shown in Fig. 1 a pocket 7 is provided at both ends of the chill to receive a separate

sand; this construction makes it unnecessary to use a pattern, but a sand 8 separate from the sand 1 is placed at each end of the chill through which the gas escapes, and preventing blowing of the axle.

As shown in Fig. 2 a tongue 9 is arranged on one of the chill sections, said tongue being designed to enter a corresponding groove 10 in the fellow section in order to insure an absolutely true and concentric casting, or it may be necessary to turn it a little to make it perfect.

In carrying out my invention after the chill has been properly embedded in the sand molten metal is poured into the chill forming the axle as shown in Fig. 1. After removing the axle from the chill I preferably anneal the same except the outer end bearing portions in order to toughen the metal, to prevent crystallization and consequent breaking. That portion of the metal inside of the outer chilled surface is of course softer and tougher than the chill, thereby forming an axle with an extreme hard outer bearing surface and a soft core or center. The metal is poured into the mold in the usual manner but preferably at either or both ends thereof.

By employing the principle of my invention the chill on the axle can either be full covering as much of the axle as desired, or the axle may be only partially chilled.

Having thus described my invention what I claim as new and desire to secure by Letters Patent of the United States is,—

An axle made of cast metal having the bearing portions thereof chilled and the intermediate portion annealed to prevent crystallization and consequent breakage, substantially as described.

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

ELBERT R. ROBINSON.

Witnesses:

GEO. W. FAULKNER,
ELLA C. COX.