Feb. 2, 1932. K. ACKERMANN 1,843,702

APPARATUS FOR MANUFACTURING COMPOUND CASTINGS

Filed Oct. 11, 1930

Fig. 1

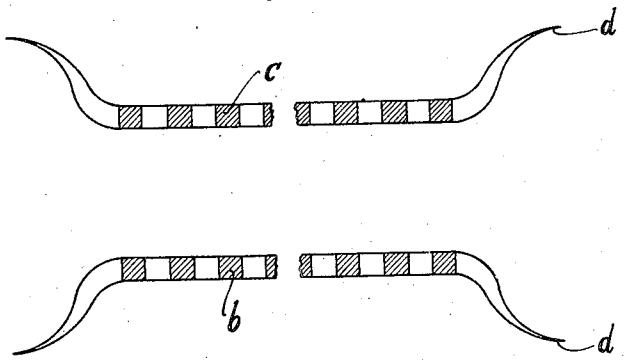
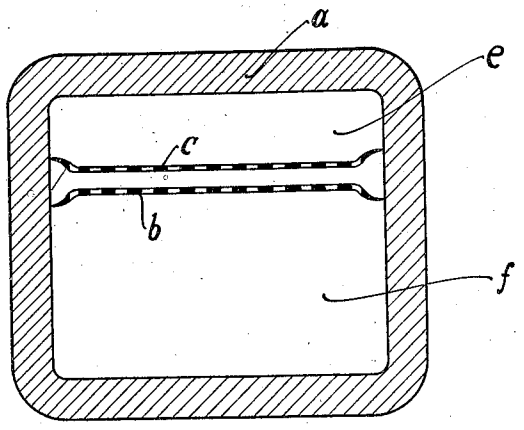


Fig. 2



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UNITED STATES PATENT OFFICE

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APPARATUS FOR MANUFACTURING COMPOUND CASTINGS

Application filed October 11, 1930, Serial No. 487,953, and in Germany March 19, 1929.

My invention relates to improvements in the method of and an apparatus for manufacturing compound castings, such for example as compound steel ingots used for manufacturing rails in which the head has a higher strength or hardness than the web and the foot. More particularly my invention relates to the method in which one or more plates of sheet metal similar in character to the metal to be cast are placed into the mold or ingot before casting the metal into the same, the said plate or plates preventing the metals of different composition from intermingling when being cast, and being combined with the metal by welding or by melting. It has been found that the metals are not always thoroughly combined near the outer surface, so that cracks are formed in the outer parts of the casting, which cracks must be closed by welding.

The object of the improvements is to provide a method in which the formation of such cracks is avoided. I have found that the cracks are produced by the cooling of the metal near the wall of the mold, the temperature of the metal being reduced so that welding or melting of the sheet metal placed into the same is impossible. Therefore my invention consists in disposing the sheet metal plates so that the amount of heat acting on the outer margins thereof is increased, and for this purpose the sheet metal plates are disposed at a greater distance at their outer parts than at their inner parts, and the plates are reduced in thickness at their outer parts.

For the purpose of explaining the invention a mold and two perforated plates located therein have been shown in the accompanying drawings, in which

Fig. 1 is a sectional plan view showing a pair of perforated plates, and

Fig. 2 is a sectional plan view showing an ingot having the said plates located therein.

In the example shown in the drawings the metal is cast in a mold *a*, and two perforated plates *b* and *c* are set into the said mold. Both plates are reduced in thickness at their outer ends as is shown at *d*, and the said ends are bent outwardly and away from the said plates *b*, *c*.

In the manufacture of the casting the metals of different composition are simultaneously cast into the sections *e* and *f* of the mold, and the said metals flow together through the perforations of the plates *b* and *c*. During the casting operation the plates *b* and *c* prevent intermingling of the metals, but they are combined with the metal by welding or melting.

I claim:

In apparatus of the character described having a mold for casting composite rail ingots, and a plurality of spaced-apart vertically-disposed perforated fusible plates extending the width of said mold, the improvement consisting of perforated plates having their marginal ends curved outwardly and taperingly drawn forward to provide enlarged marginal end portions of a casting chamber between said plates, whereby the rate of cooling of the cast mass of metal at said end portions is relatively slower than that of the mass at the central portion of the chamber thereof.

In testimony whereof I hereunto affix my signature.

KARL ACKERMANN.