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INGOT MOLD SIDEBOARD HANGER

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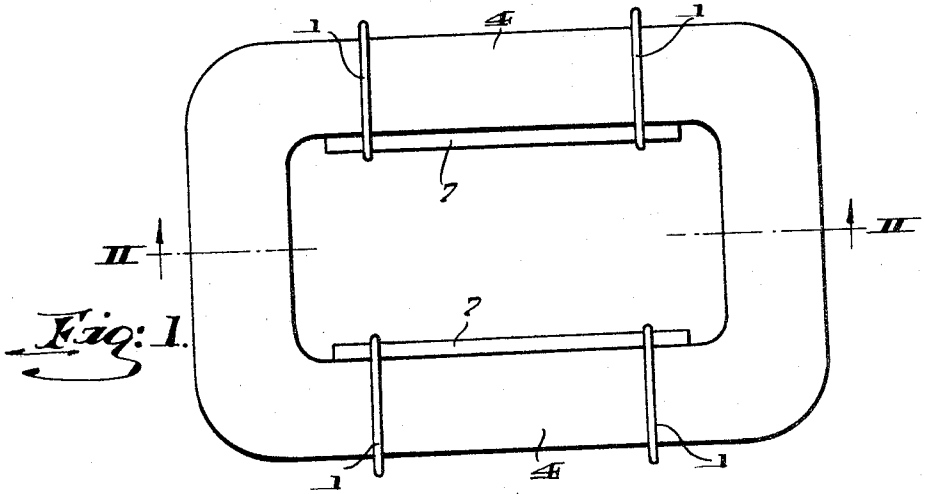


Fig. 1.

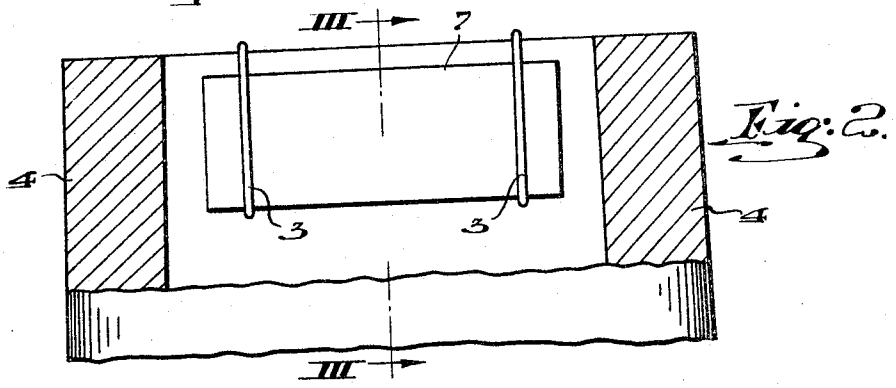


Fig. 2.

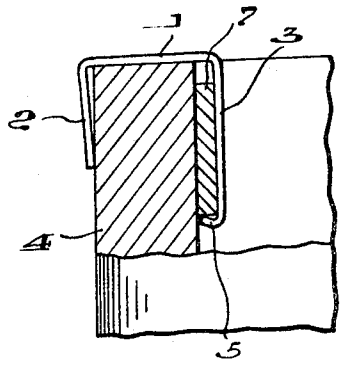


Fig. 3.

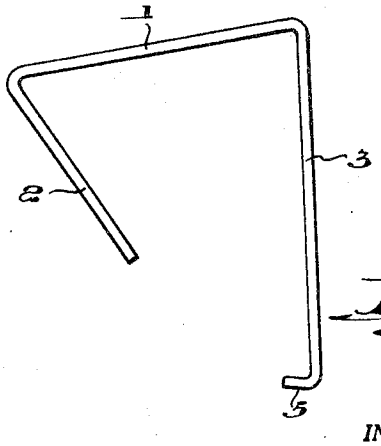


Fig. 4.

INVENTOR.
JOHN I. ORRISON
BY
Brown, Critchlow, Flick & Peckham
HIS ATTORNEYS.

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INGOT MOLD SIDEBOARD HANGER

John I. Orrison, Bellevernon, Pa., assignor to Pittsburgh Steel Company, a corporation of Pennsylvania

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2 Claims. (Cl. 22—147)

This invention relates to the casting of ingots, and more particularly to devices for hanging exothermic sideboards in ingot molds.

It is now fairly common practice to suspend board-like elements of exothermic material in the top of an ingot mold. As the ingot is being poured and the molten metal rises to the top of the mold, it comes in contact with the exothermic material. The reaction of the hot metal with the sideboard produces a steady flow of heat for a length of time after pouring has stopped, and thereby keeps the upper end of the ingot molten while solidification takes place. The result is that the long V-necked shrinkage cavity is reduced, requiring less cropping of the ingot. The common way of suspending such sideboards in ingot molds is to hang them by wires from pipes or rods, the ends of which rest on top of the molds. Since the boards hang loosely from their supports, there is a tendency for them to pivot and float upward away from the adjoining sides of the mold as the metal arises around them. In an attempt to prevent that from occurring, wooden shoring is wedged between the sideboards. However, the shoring cannot be depended upon because it burns away long before the metal solidifies.

It is among the objects of this invention to provide exothermic sideboard hangers which are simple and inexpensive in construction, which can be applied quickly to ingot molds, which will firmly hold sideboards against mold walls of various thicknesses, which will not allow the sideboards to pivot or float, and which will not burn away before the metal being poured has solidified.

In accordance with this invention the exothermic sideboard hanger consists of a bent metal rod having a laterally extending body and downwardly extending legs at the opposite ends of the body. The lower end portion of one of the legs projects laterally toward the other leg. The hanger is adapted to fit over the top of a side wall of an ingot mold, with the laterally projecting portion of the one leg inside the mold where it will support an exothermic sideboard. Preferably, the hanger legs initially converge downwardly so that they will have to be spread apart in order to fit over the mold wall. This enables the hanger to grip walls of various thicknesses.

The preferred embodiment of the invention is illustrated in the accompanying drawings, in which:

FIG. 1 is a plan view of an ingot mold in which exothermic sideboards are hung;

FIG. 2 is a fragmentary vertical section taken on the line II—II of FIG. 1;

FIG. 3 is a fragmentary vertical section taken on the line III—III of FIG. 2; and

FIG. 4 is an enlarged side view of one of the hangers before application to an ingot mold.

Referring to FIG. 4 of the drawings, a hanger for an exothermic sideboard is formed from a metal rod, preferably made of spring steel, which is bent into the approximate shape shown. Thus, the rod is bent to provide it with a laterally extending body 1 having downwardly extending legs 2 and 3 at its opposite ends. The body is designed to engage the top of a side wall 4 of an ingot mold as shown in FIG. 3, with the two legs of the hanger straddling the wall. The leg 3 that extends down inside the mold is considerably longer than the other leg and has a laterally projecting lower end portion 5 that extends beneath body 1 toward the shorter

leg 2. For best results, the two legs converge downwardly to such an extent that they will have to be sprung apart in order to fit the hanger over a mold wall. When the long leg is disposed vertically as shown in FIG. 4, it is preferred that the body 1 be inclined downwardly away from it so that the included angle between each leg and the body will be an acute angle. This gives more spring to the hanger than if the body were perpendicular to the long leg before application to an ingot mold.

To hang an exothermic sideboard inside an ingot mold, at least two of these hangers are used. The sideboard 7 is inserted in the hangers and held by hand against their long legs while resting on their laterally projecting lower ends 5. The sideboard and the long legs of the hanger are then lowered into the mold, with the sideboard engaging the inner surface of side wall 4. When the lower ends of the outer legs 2 of the hangers touch the top of the mold, those two legs are pulled outward to permit them to slide down the outside of the mold until the body of the hanger rests on the mold. The lower portions of the inner legs overlapping the mold wall will hold the hangers while their outer legs are being sprung outward. The hanger will bend at both ends of the body, which therefore will engage the top of the mold substantially flat.

The body 1 of each hanger is long enough to project beyond the outside of the mold, whereby only the lower end of the short outer leg will engage the mold. The space between the rest of the short leg and the adjacent side of the mold allows the leg to be pulled outward without pinching the fingers as the hanger is applied to the mold. A second sideboard is hung on the opposite side of the mold by similar hangers.

Sideboard hangers constructed in accordance with this invention are simple and inexpensive to make and can be quickly mounted in operative position without any trouble. They will firmly grip ingot mold walls varying considerably in thickness and will hold the sideboards securely in position as long as is necessary. No tools are required and it is unnecessary to provide the sideboards with wires for suspending them from overhead supports. The need for shoring likewise is eliminated.

According to the provisions of the patent statutes, I have explained the principle of my invention and have illustrated and described what I now consider to represent its best embodiment. However, I desire to have it understood that, within the scope of the appended claims, the invention may be practiced otherwise than as specifically illustrated and described.

I claim:

1. The combination with the upper end of an ingot mold having a sidewall, and an exothermic sideboard disposed against the inner surface of said sidewall at its top, of a plurality of spring hangers holding the sideboard in position, each hanger consisting of a bent spring metal rod having a body extending across the tops of said sidewall and sideboard and having downwardly extending legs at the opposite ends of said body straddling the sidewall and sideboard, the outer leg engaging the outside of said sidewall, and the inner leg extending down across the inner surface of said sideboard, the lower end portion of said inner leg projecting outward beneath the sideboard and supporting it, said legs being resiliently urged toward each other.

2. The combination with the upper end of an ingot mold having a sidewall, and an exothermic sideboard disposed against the inner surface of said sidewall at its top, of a plurality of spring hangers holding the sideboard in position, each hanger consisting of a bent spring metal rod having a body extending across the top of said

sidewall and projecting from its outer edge, said rod having downwardly extending legs at the opposite ends of said body straddling the sidewall and sideboard and sprung apart, the outer leg being inclined from said body toward and into tight engagement with the outside of said sidewall, and the inner leg tightly engaging the inner surface of said sideboard and having its lower end portion projecting outward beneath the sideboard to support it.

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