Aug. 27, 1940. G. H. JONES ET AL 2,212,689

COMBINED INGOT CAR AND STOOL

Filed March 11, 1939

FIG. 1.

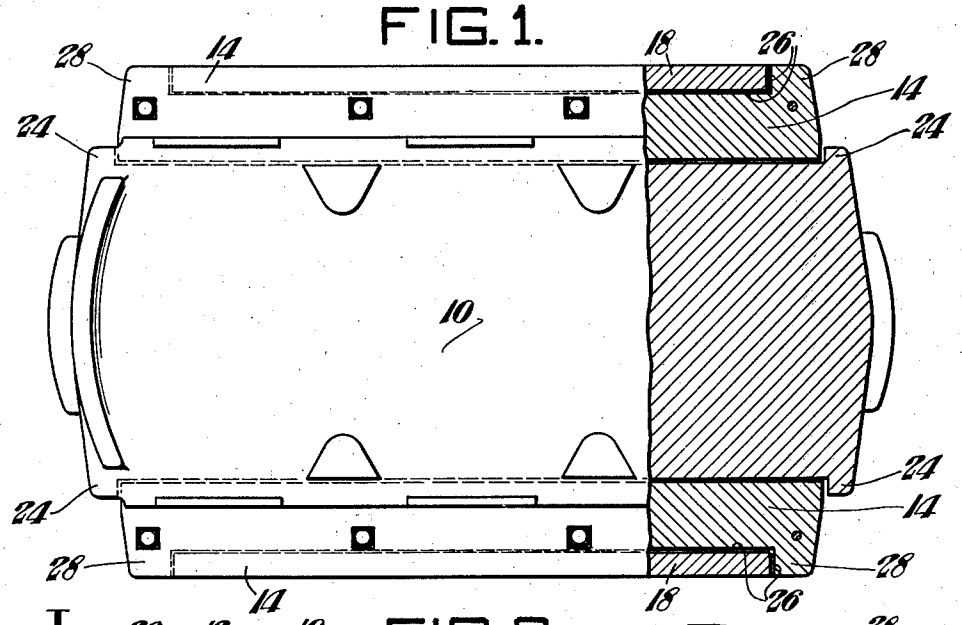


FIG. 2.

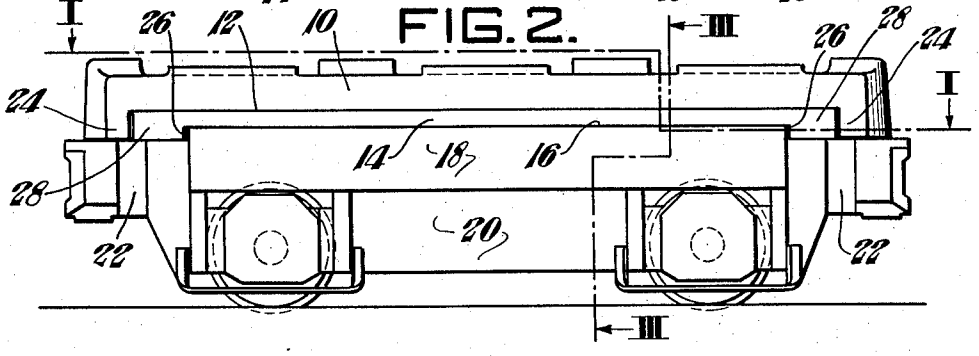
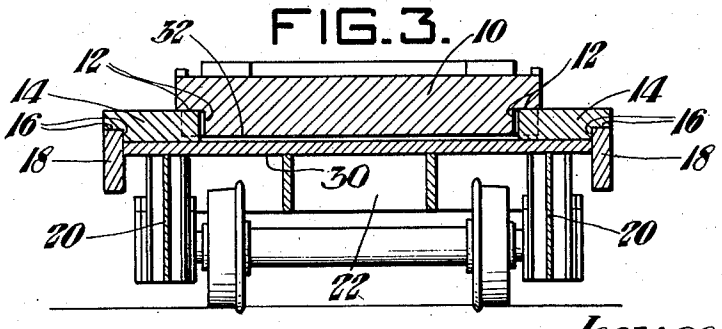


FIG. 3.



Inventors:

GEORGE H. JONES and
PEER D. NIELSEN.

by: John E Jackson
their Attorney.

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COMBINED INGOT CAR AND STOOL

George H. Jones and Peer D. Nielsen, Lorain, Ohio, assignors to National Tube Company, a corporation of New Jersey

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2 Claims. (Cl. 22—90)

This invention relates to specific features of construction of a combined car and stool peculiarly well suited for holding ingot molds during the teeming thereof and for transferring them to and from teeming position.

Heretofore the stools of ingot cars have, in some cases, been prevented from moving with respect to the car body by the provision of depressions in the underside of the stool which fitted over lugs projecting upwardly from the car body and, in other cases, lugs were provided on the bottom of the stool to interfit with depressions cast in the car body. The stools heretofore used were usually of a width to cover the entire car body and their design was such that the bottom surface of the stool of necessity was a true plane surface supported on the car body to avoid concentration of stresses in the stool.

Such stools of the prior art were objectionable in several respects. The maintenance of the lugs was a problem because once they were broken, the stool could not be satisfactorily anchored to the car. With the lugs attached to the car body, maintenance expense to keep them in proper operating condition was an objectionable feature. The old designs of stools having lugs on the bottom required the use of a cope in casting. This added to the initial cost of pattern making and the continuing cost of mold maintenance.

The present invention aims to overcome the objectionable features of stools of prior design used in casting big end down ingots by providing a superior means of anchoring the stool to the car body and at the same time making the stool in three sections, the side portions subject to very little wear being securely bolted to the car body and the center section being interfitted with the side sections completely overlapping them, so that it is not only held securely in place, both lateral and longitudinal movement being prevented while still being readily replaceable, but with the side pieces presents an upper surface which completely prctects the car. This construction provides for replacement of that portion of the stool subject to the most wear, which serves obviously to make replacement less costly. The invention will be fully apparent from consideration of the following disclosure, the accompanying drawing and the appended claims.

In the drawing:

Figure 1 is a plan view of an ingot mold car equipped with the improved stool, portions being broken away in the interest of clearness;

Figure 2 is a side elevation of Figure 1; and

Figure 3 is a transverse section on line III—III of Figure 1.

Referring in detail to the drawing, the numeral 10 represents generally the center section of the stool for supporting the mold, which is provided along its opposite longitudinal side edges with notches 12—12 which overlap and are seated on side sections of the stool 14—14 which in turn are notched, as indicated at 16—16, for engagement with side sills 18—18 of the ingot car. These sills are suitably supported by a car truck which includes suitable side frames 20—20 and end sills 22.

The notches 12—12 formed in the underside of the stool terminate short of the ends thereof, thus providing end shoulders 24, clearly indicated at the right side of Figure 1, which project laterally beyond the ends of the side sections of the stool 14. As thus arranged, it will be apparent that the interconnection of the notched portions of the underside of the stool is such that the stool is prevented from shifting either longitudinally or laterally with respect to the side sections of the stool which, in turn, are fixedly secured to the car proper. These side sections of the stool have cutaway portions, indicated at 26 in Figure 1, so as to provide end lugs 28 arranged in abutting relation with the end faces of the side sills 18.

The provision of the side sections of the stool 14 seated on the end sills in the manner shown and described permits the center section of the stool 10 to be made considerably narrower in width than the car body. That part of the car body not covered by the stool is amply shielded from the action of metal splashed during teeming by the side sections of the stool 14. Thus the center section of the stool need not be any wider than required by the dimensions of the particular ingot molds which it is to support, as the manner in which it engages the side sections of the stool, overlapping them as described, adequately protects the car.

The side sections of the stool 14 are not subjected to any substantial wear in the teeming of ingots and, therefore, they have an exceedingly long life. They need only be made sufficiently strong to withstand the stress to which they are subjected in holding the center sections of the stool in place, it being apparent from Figure 3 that they rest directly on the top member 30 of the car immediately above the truck frame members 20 and directly engage the side sills 18.

By the utilization of the construction and arrangement illustrated, the stool can be made lighter in weight by the amount it is reduced in

width as compared with the conventional stools heretofore used which, as above mentioned, were normally of a width equal to that of the car.

As ingot mold stools have a comparatively short service life, the saving in weight effects important economies.

As the side sections of the stool are not subjected to any appreciable wear in the handling of the ingot molds, they need not be replaced as frequently as the center sections of the stools. Thus the side sections of the stool being constructed as we have described can be used indefinitely and serve substantially as a part of the car proper.

The improved stool construction eliminates the use of cores or copes in the foundry molding operation, thus molding costs are substantially reduced. This further reduces stool maintenance expense, in addition to the actual reduction in stool weight, as above explained. The longitudinally extending notches 12 which interfit with the side sections of the stool 14 can be readily formed in green sand, either by the use of a core arbor or by making the pattern in such a way that the same can be drawn out of the green sand. Thus the necessity of using a cope when casting the improved stool is avoided.

The upper surface of each notch 12 is preferably a plane surface and it seats on the plane upper surface of the side sections 14 of the stool. The lowermost surface 32 of the center section of the stool is spaced above the upper surface of the top member 30 of the car. Thus, provision is made so that there is ample clearance between the underside of the stool and the top car member 30. Because of this clearance the underside of the stool need not be a true plane surface. Therefore, surface irregularities due to casting the stool without the use of a cope are of no consequence.

From the foregoing disclosure it is manifest that the combined instrumentalities described provide means for locking the stool on the car in an improved manner and that the means employed are stronger and more positive than those previously used in the art. Coupled with this greater strength there is an economic saving due to greatly decreased maintenance expense.

While we have described quite specifically the embodiment of the invention illustrated, it is to be understood that the claims are to be interpreted as broadly as is consistent with the teachings of the prior art.

We claim:

1. In an ingot mold car, a three-part stool comprising a pair of longitudinally-extending side sections fastened to the car and a readily removable center section having a notched seat extending along the outer edge of each of the opposite undersides thereof and interfitted with a respective side section, said notched seats terminating short of the ends of the stool so as to provide end shoulders beyond ends of said side sections whereby the latter prevent displacement of the center section both laterally and longitudinally.

2. In combination, an ingot mold car comprising side frames and a top member, a three-part stool supported by the car and comprising side sections disposed directly above the side sills of the car, said side sections being fastened to the car, and a readily replaceable center section having notched portions interfitted with and overlapping said side sections so as to position the center section against displacement relative to the side sections, each of said side sections having end abutments which laterally overlap the ends of said side sills.

GEORGE H. JONES.
PEER D. NIELSEN.