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COUPLER KNUCKLE CASTING

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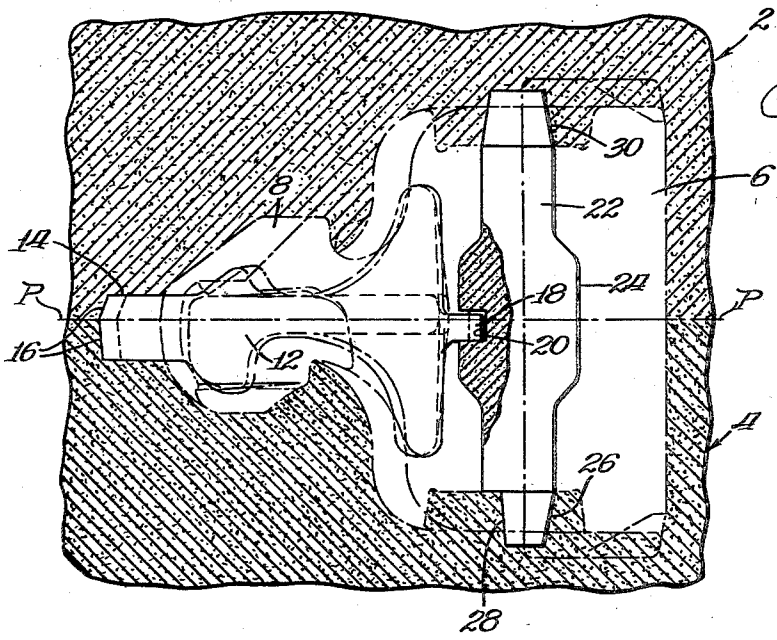


Fig. 1.

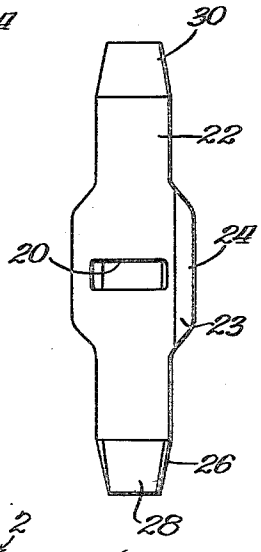
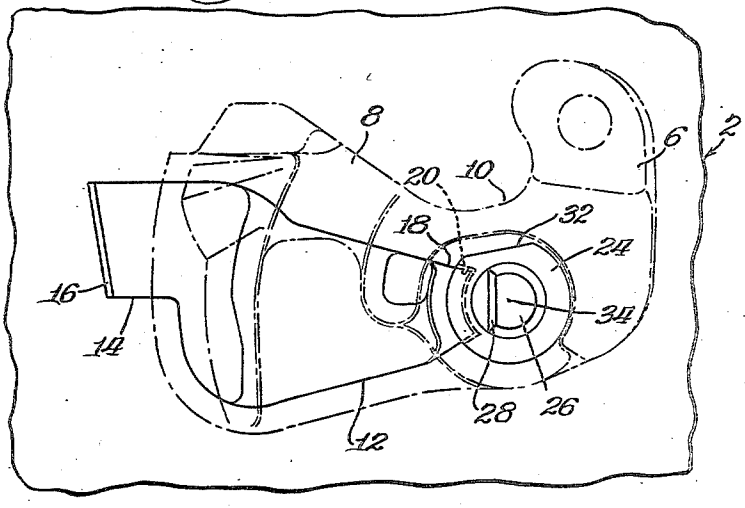


Fig. 3.

Fig. 2.



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COUPLER KNUCKLE CASTING

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4 Claims. (Cl. 213—155)

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This invention relates to railway couplers and more particularly to the knuckle of an automatic coupler, such as the American Association of Railroads' Standard E coupler.

It has been found that prior art knuckle castings develop fatigue cracks through the highly stressed throat of the knuckle and through the tail portion thereof at the points of support for the knuckle tail core.

Accordingly, a primary object of the present invention is to provide a knuckle casting which may be economically manufactured and is stronger than those heretofore known in the prior art.

A more specific object of the invention is to avoid weakening of the knuckle tail by eliminating the prior art supports for the knuckle tail core intermediate the ends of the casting.

Another object of the invention is to increase metal thickness in the throat of the knuckle by providing an unsymmetrical pin hole core, and by positively positioning the latter in such manner that maximum metal thickness is afforded in the throat of the knuckle.

A more specific object of the invention is to support the knuckle tail core by detachably interlocking the front end thereof with the pin hole core, thereby avoiding the necessity for supporting the knuckle tail core intermediate its ends.

A further object of the invention is to devise an interlock between the cores, accommodating quick assembly thereof in the mold.

Still another object of the invention is to provide means for positively positioning the pin hole core in a predetermined rotational position within the mold, to facilitate assembly of the cores, and to maintain the pin hole core in position whereat maximum metal thickness is provided in the throat of the casting.

The foregoing and other objects of the invention will become apparent from a consideration of the following specification and the drawings wherein:

Figure 1 is a vertical sectional view through a mold for an AAR Standard E coupler knuckle, the contour of which is illustrated in phantom lines, the pin hole core being broken away to illustrate its interlock with the tail core.

Figure 2 is a plan view of the cope with the knuckle contour shown in phantom lines.

Figure 3 is a side elevational view of the pin hole core.

Describing the invention in detail, and referring first to Figure 1, the cope and drag sections of the mold are fragmentarily illustrated at 2 and 4 respectively, and define a casting cavity having a nose section 6 and a tail section 8, interconnected along a throat 10, as best seen in Figure 2. The parting line of the cope and drag sections 2 and 4 is indicated at P—P.

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A knuckle tail core 12, is supported by a lug 14, at the rear end thereof, said lug being tapered as at 16 to afford draft. The front end of the tail core 12 is provided with a forwardly tapered lug 18, received with a complementary slot or recess 20 in a pin hole core 22, having an enlarged central portion 24, and having a bottom lug or projection 26. The lug 26 tapers downwardly as best seen in Figure 1, and is flattened on one side as at 28, for reception within a complementary opening in the supporting drag 4. The top of the pin hole core is provided with another lug or projection 30, tapering upwardly and received within a complementary opening of the cope 2.

It may be noted that the configuration of the lug 26 and its mating recess in the drag 4, positively positions the pin hole core 22 in a predetermined rotational position with respect to its longitudinal axis, a flat section 32 (Figure 2) on the intermediate portion 24 of the pin hole core 22 faces the throat section 10, of the casting cavity, to afford a relatively great metal thickness in the corresponding throat of the knuckle casting, the contour which is shown in phantom lines in Figures 1 and 2. The configuration of the bottom lug 26, of the pin hole core 22, also positions its slot 20, to insure proper mating with the lug 18 of the tail core 12; and in this connection it may be noted that if desired, the lug 18 may be formed on the pin hole core 22, and the slot 20 may be formed in the front end of the tail core 12, if reversal of these interlocking parts is desired.

It may also be noted that the flat area 32 of the pin hole core 22 may, if desired, be of any suitable configuration to increase metal thickness in the throat of the knuckle casting, provided that the surface 32 be closer to the longitudinal axis 34 (Figure 2) of the pin hole core 22. Also the lug 26 and its mating recess in the drag 4 may be of any desired configuration, provided that assembly of the core 22 in only one rotational position about its longitudinal axis is possible, thereby predetermining the position of the surface 32, so that it faces the throat 10, and also predetermining the position of the slot 20, so that it mates with the lug 18 of the tail core 12.

I claim:

1. A railway coupler knuckle casting having a

tail section and a nose interconnected by a throat, and a pin hole extending lengthwise thereof through said knuckle from top to bottom of said knuckle, said hole having an enlarged portion intermediate its ends, the side of said enlarged portion facing said throat being closer to the longitudinal axis of the pin hole than the remainder of said enlarged portion.

2. A railway coupler knuckle having nose and tail sections interconnected by a throat, a pinhole through said knuckle in the region of said throat, and a core opening extending into said pinhole and interrupting the rear extremity of the tail section, said core opening being entirely spaced from the upper and lower surfaces of said knuckle.

3. A railway coupler knuckle in the form of a casting having nose and tail sections interconnected by a throat, and a substantially cylindrical pinhole through said casting, said pin hole extending lengthwise thereof from top to bottom of said casting and having an enlarged portion between its ends partly defined by a substantially flat side facing said throat and disposed closer to the longitudinal axis of the pinhole than adjoining portions thereof.

4. A railway coupler knuckle having nose and tail sections interconnected by a concave throat,

a substantially cylindrical pin hole through said knuckle interrupting top and bottom surfaces of the knuckle, said pin hole having a larger diameter portion between the ends of said pin hole, said larger diameter portion being partly defined by a substantially flat area facing said throat and disposed closer to the longitudinal axis of the pin hole than the remainder of said larger diameter portion, and a core opening interrupting the rear extremity of the tail section, said core opening extending into said larger diameter portion of said pin hole, and said core opening being entirely spaced from said top and bottom surfaces of the knuckle.

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