Nov. 1, 1927. 1,647,544

D. ROBINSON

COUPLER

Filed March 10, 1926

Fig. 1.

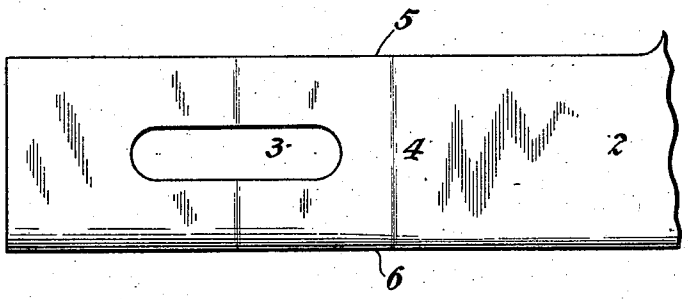


Fig. 2.

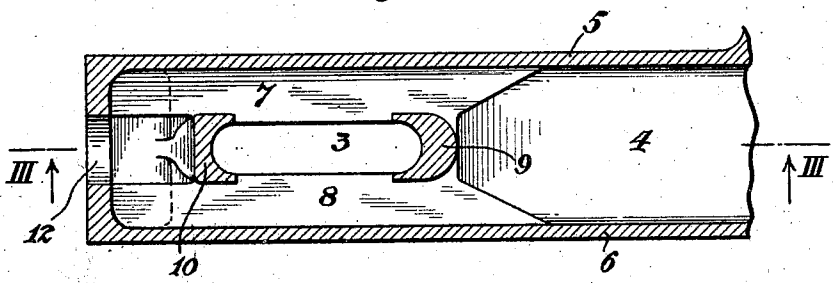


Fig. 3.

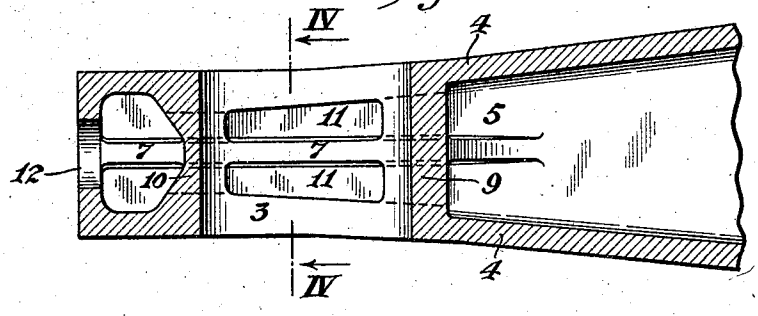
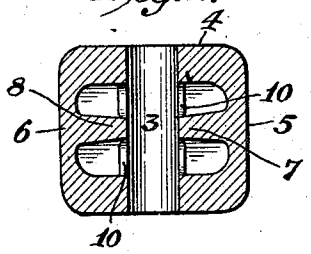


Fig. 4.



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UNITED STATES PATENT OFFICE.

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COUPLER.

Application filed March 10, 1926. Serial No. 93,649.

Fig. 1 is a side elevation of the shank of a car coupler of the standard D-type to which my improvements have been applied; Fig. 2 is a vertical longitudinal section thereof; Fig. 3 is a section on line III—III of Fig. 2; and Fig. 4 is a section on line IV—IV of Fig. 3.

My invention relates to couplers, and particularly to couplers of the standard D-type. The shanks of such couplers are recognized as being weak around the key slot, and in carefully supervised tests it has been found that the key slot begins to distort at a very much lower load than any other part of the shank. The solution of the problem of constructing a shank with sufficient strength, particularly about the key slot, involves not only the distribution of metal to the best possible advantage, but also presents very serious problems in molding and core making. The hollow interior of the shank is, of course, formed by the core, which must be reinforced and held in place by core rods or bars, and hence the problem of reinforcing the key slot is complicated by the requirement that enough space must be left for the core and its reinforcing rods. In working out a solution of this problem I have provided reinforcements which connect the metal adjacent the ends of the key slot with the top and bottom sides of the shank, and at the same time I have left sufficient openings and room for the core and its supporting and reinforcing rods. My invention also comprises various features which I shall hereinafter claim.

Referring to the drawings, the coupler shank 2, which is of the standard D-type, has in it a transverse slot 3 for a key (not shown), by which connection is made with the draft gear. In the standard D-coupler the metal adjacent the ends of the key slot is connected only with the side walls 4 of the shank, and no connection is made with the top and bottom walls 5 and 6, but in the present embodiment of my invention I have arranged two vertically extending ribs 7 and 8 in the vertical central plane of the shank which provide bearings for the key and are integrally connected with the curved walls 9 and 10 at the front and rear ends of the key slot 3. It will be seen that the ribs 7 and 8 tie the front and rear walls 9 and 10 of the key slot directly to the top and bottom walls 5 and 6 of the shank, and also provide direct bearings for the key, thus carrying part of the load direct from the key slot to the top and bottom shank walls 5 and 6, thereby effecting a distribution of the load to all four of the exterior walls of the shank. Between the ribs 7 and 8 and the side walls 4 of the shank are longitudinally extending spaces 11 of substantial size, which provide room to permit the use of a sufficiently strong core with its reinforcing rods.

When the coupler is cast the hollow interior of the shank is formed by a core which extends clear to the rear of the coupler shank and is supported by a core print at the hole 12. This core must, of course, be reinforced by core rods, and the spaces 11 on either side of the ribs 7 and 8 provide sufficient room for the core and its reinforcing rods at these points.

Coupler shanks constructed in accordance with my invention are very much stiffer than shanks constructed in accordance with the present standard, and in comparative tests will withstand substantially greater compressive loads. My improved shank, furthermore, is shown to be formed with longer key slots than are used with the present standard, but in spite of the weakening of the shank by the longer key slot, it will, in the particular embodiment of my invention shown herein, withstand a compressive load of at least fifty thousand pounds greater than with the present standard.

My improved construction has the further advantage of avoiding the formation of a section of metal sufficiently thick to cause shrinkage and possible distortion.

The terms and expressions which I have employed are used as terms of description and not of limitation, and I have no intention, in the use of such terms and expressions, of excluding any mechanical equivalents of the features shown and described, or portions thereof, but recognize that various structural modifications are possible within the scope of the invention claimed:

What I claim is:

1. A coupler having a hollow shank with a transversely extending key slot therein, the metal at the forward and rear sides of the key slot joining the side walls of the shank; vertically extending ribs integral with the

top and bottom walls of the shank and tying the fore and aft walls of the key slot to the top and bottom walls of the shank, each rib having on either side an opening connecting the key slot with the hollow portion of the shank.

2. A coupler having a hollow shank with a transversely extending key slot therein, the metal at the forward side of the key slot joining the side walls of the shank and the metal at the rear side of the key slot joining the side walls of the shank, the metal at the forward and rear sides of the key slot being united by a central web above and below the key slot independently of the side walls of the shank.

3. A coupler having a hollow shank with a transversely extending key slot therein, the metal at the forward and rear sides of the key slot joining the side walls of the shank; vertically extending ribs integral with the top and bottom walls of the shank and tying the fore and aft walls of the key slot to the top and bottom walls of the shank, each rib having a portion connecting the rear wall of the coupler shank directly to the sides of the key slot.

DAVID ROBINSON.