

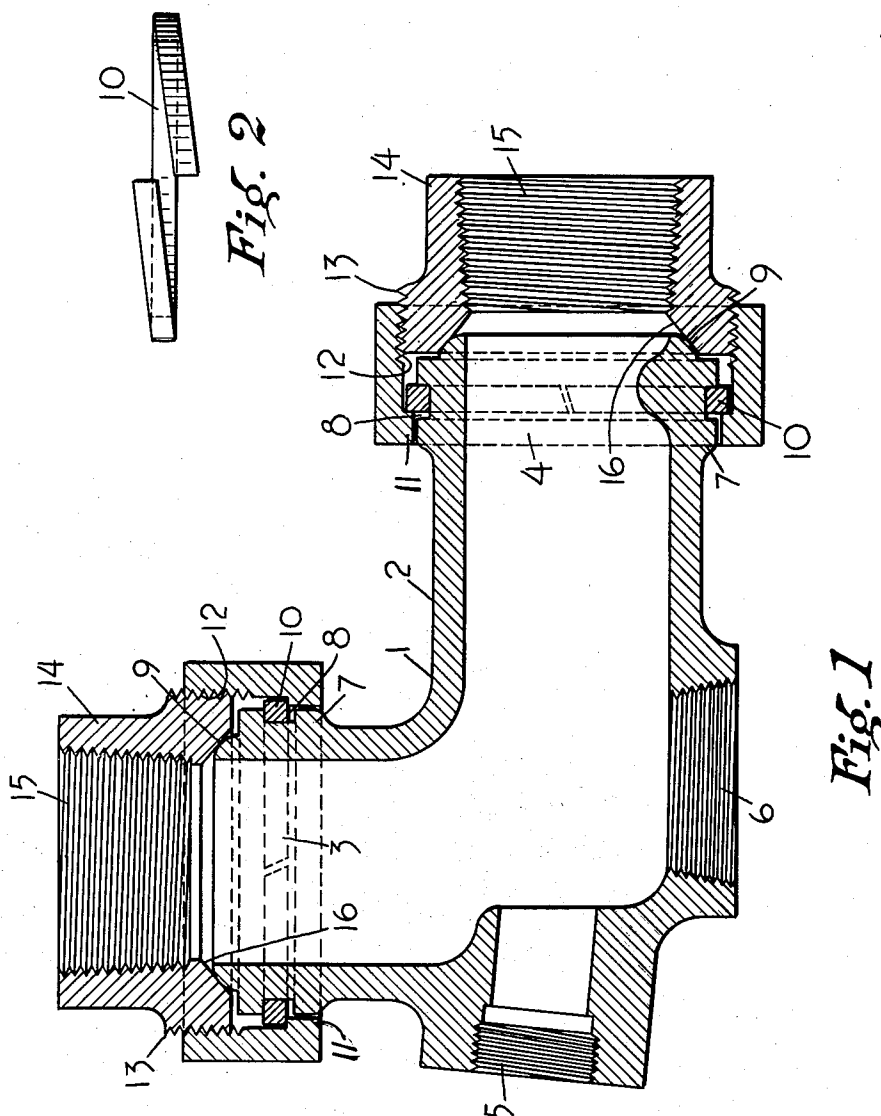
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PIPE COUPLING

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PIPE COUPLING

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1 Claim. (Cl. 285—122)

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The invention pertains to a pipe coupling and has for one of its objects the provision of a flexible or resilient means forming a positive interlock between two members of the coupling as well as functioning as a medium through which the coupling is held firmly in a sealed predetermined position.

Another object of the invention is the provision of a pipe coupling wherein no exterior threads are exposed to be subjected to damage in transit and, further, wherein an expanding means not only holds a seal in a predetermined position but also affords a means whereby water may find its way to the exterior of the coupling.

The above objects, as well as numerous others, will become apparent from the following description of a form of the invention illustrated in the accompanying drawing, wherein:

Figure 1 is a vertical sectional view of a construction embodying the present invention.

Figure 2 is a side elevational view of a portion of the structure shown in Figure 1.

Referring now in detail to the drawing, wherein like reference characters indicate like parts, the numeral 1 is employed to designate, in a somewhat general manner, a section of piping. While the invention may be employed to couple together any two sections of pipe, the specific illustrated embodiment of the invention comprises a sand trap 2 employed in a sanding mechanism or sand distributing system of a railway locomotive. The sand trap generally includes an inlet port 3 through which the sand enters the sand trap from a source of supply, an exhaust port 4 through which the sand is discharged from the sand trap and carried by suitable piping (not shown) to the locomotive supporting rails, an inlet port 5 through which a blast of air is introduced into the sand trap to carry the sand through the exhaust port, and, finally, a clean-out port 6 normally occupied by a plug or any other removable element (not shown). The air inlet port and clean-out port are interiorly threaded as indicated. Further, a locomotive on which the sand trap is mounted is continually subjected to external and internal impulses causing the components of the locomotive to be continuously subjected to vibratory forces. These vibrations cause ordinary unions to come loose and as such form a continual source for inspection. Since this sand trap, as in all such cases, is mounted on an exposed part of the locomotive, water or any other foreign substance, without adequate provisions being made to prevent it, oftentimes finds its way through the usual or ordi-

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nary union into the sand trap to contaminate the sand therein or cause it to become damp or wet and thus clog the sand line.

All of these above mentioned undesirable conditions or constructions are removed in the present structure in that the connection at the intake and exhaust ports are designed to form an adequate and effective seal. Accordingly it will be noted that the area of the sand trap adjacent each port under immediate consideration is enlarged or thickened as at 7 to present an outwardly facing channel-shaped continuous groove or recess 8 disposed adjacent to a related extremity of the sand trap. The extremities of the sand trap at the ports 3 and 4 are provided with outwardly facing convex circular or rounded faces 9 which are disposed in defining relation to the ports so as to present arcuate or curved extremities for the purpose to be hereinafter explained.

Disposed within each groove is a split resilient ring 10 shown in detail and removed from the sand trap in Figure 2 of the drawing. Each split ring is of an outside diameter greater than the over all or transverse dimension of the sand trap at the thickened portions 7 thereof and has an inside diameter substantially equal to the inside diameter of the accommodating groove so as to lie in abutting relation with the sand trap. The thickness of each spring ring is less than the width of a related groove and, because of this relationship, the rings may be easily inserted in the grooves and the inherent resilient characteristics of the rings may be utilized in service. The groove holds the ends of the split ring against full expansion and final locking movement is limited by the width of the groove, hence final locking requires only a partial turn of a union. Associated with each spring ring is a collar, sleeve or union having at one extremity thereof an inner or inwardly directed annular flange 11 with an inside diameter slightly greater than the enlarged portions of the sand trap but less than the outside diameter of the rings. As will be noted, the sleeve flange is of such diameter that prior to the introduction of the split ring into the groove the collar may be sleeved over an extremity of the sand trap at the ports 3 and 4. The split ring is then inserted into an accommodating groove and the flange 11 of each collar thus forms an abutment against which the spring ring may bear. Further, the split rings form resilient pulling shoulders through which stresses are transmitted from the collars to the sand trap. Each collar is interiorly threaded as at 12 beyond the associated extremity of the sand trap to present

interlocking means which mesh with exterior threads 13 of a nipple 14. Each nipple, forming in effect a removable continuation of the sand trap at the ports 3 and 4, is interiorly threaded as at 15 to accommodate a section of pipe (not shown) forming a part of the sand line. A nipple has an interiorly, outwardly flared, tapered, plane surface 16 defining an inner end thereof which normally bears against a related convex or curved surface 9. By this arrangement of surfaces a continuous uninterrupted line contact or positive seal is provided at the nipple-trap juncture with the split ring tending to pull the nipple toward the sand trap, thus maintaining this seal irrespective of any vibratory forces to which the arrangement may be subjected in service. Finally, it will be observed that any water or moisture finding its way into the union beyond the threads 12 will come to rest temporarily upon the split ring and thus follow the split ring until the adjacent ends thereof are reached at which time the water will pass between the adjacent ends of the ring and out of the union between the collar flange 11 and thickened part 7 of the sand trap.

From the above it will be noted that various changes and alterations may be made to the described and illustrated construction without departing from within the spirit of the invention and scope of the appended claim.

I claim:

In a pipe coupling comprising a pair of mating members, one of said members having an exterior outwardly facing continuous groove adjacent an extremity thereof, a bearing surface formed on said one of said members adjacent said groove, another of said members having exterior threads

and provided with a surface in bearing relation with said first surface, one of said surfaces being convexly arcuate in cross-section and said other surface being conical, a split spiral spring ring disposed within said groove and being of a width substantially less than the width of said groove and of a thickness greater than the depth of said groove, and a collar having interior threads at one end for interlock with the exterior threads of said other of said members and an internal flange at its other end overlapping an end of said split spring ring remote from said bearing surfaces; the inside diameter of said internal flange being less than the outside diameter of said split spring ring and substantially greater than an outside diameter of said grooved member, and the inside diameter of said collar being greater than the outside diameter of said ring.

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