June 28, 1949. J. C. DENIER 2,474,727

RAIL FITTING

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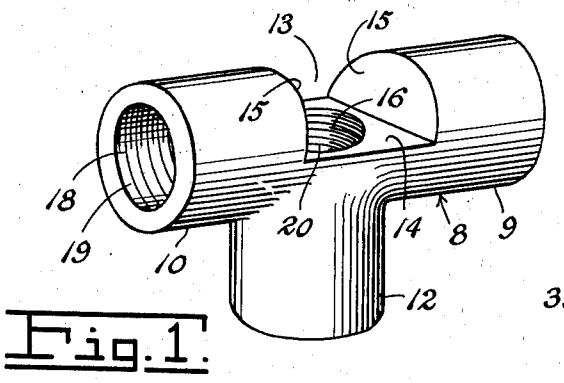


Fig. 1.

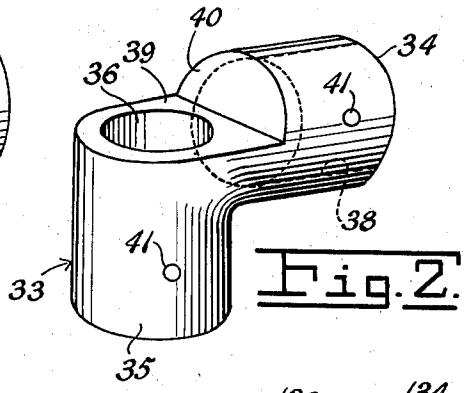


Fig. 2.

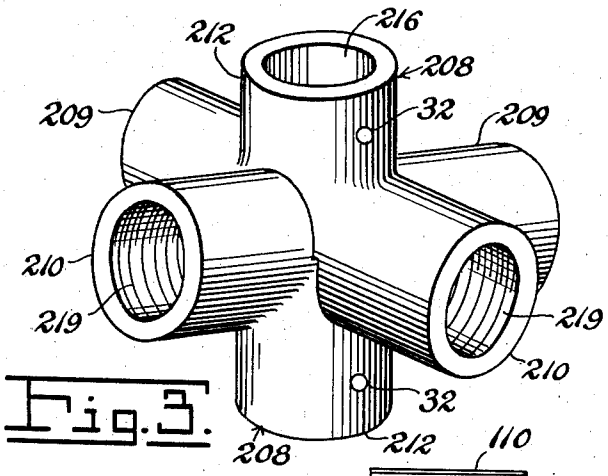


Fig. 3.

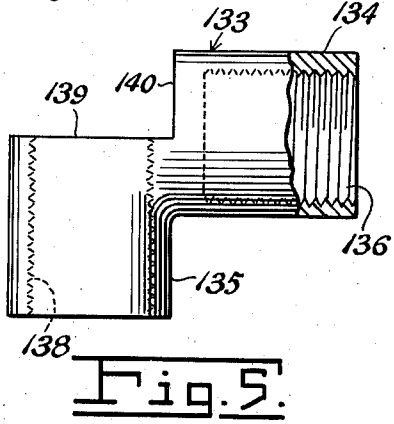


Fig. 5.

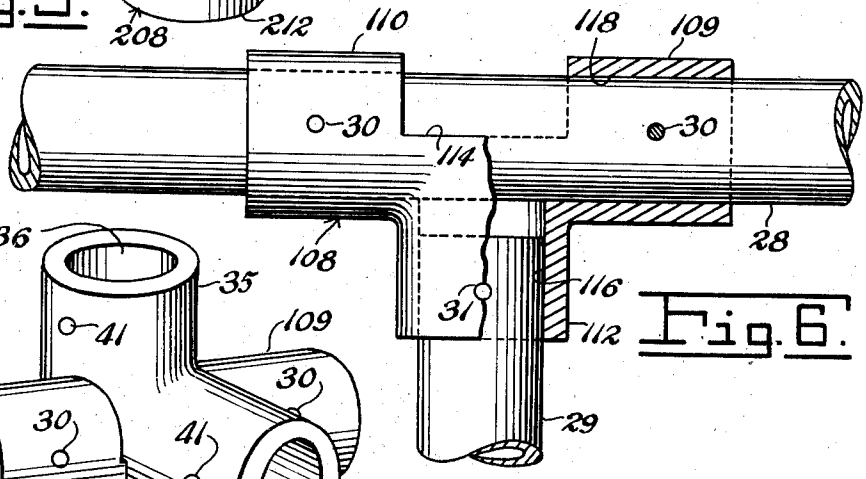


Fig. 6.

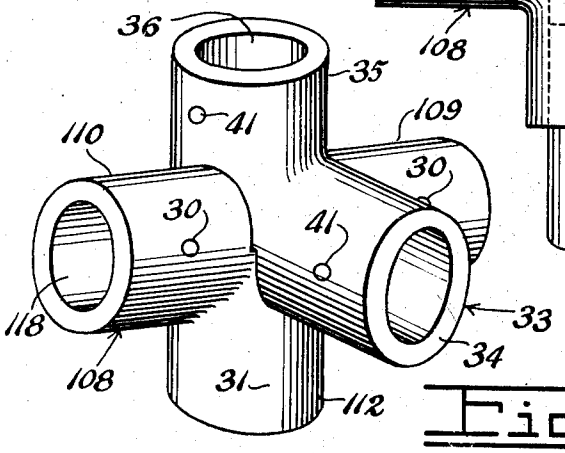


Fig. 4.

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RAIL FITTING

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11 Claims. (Cl. 287—54)

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This invention relates to rail fittings particularly adapted for use in forming, assembling, or installing railings for different purposes.

One of the objects of the invention is to provide a simple, efficient, and inexpensive means for securely connecting the ends of pipes, rods, and the like in constructing or installing railings and fences.

Another object is to provide inexpensive rail fittings which may be used in combination for obtaining side outlet crosses and other combinations.

A further object is to provide a pair of interchangeable fittings for assembling combinations of various types in the construction and installation of guard rails, fences and the like, thus enabling the supplier or distributor to stock a minimum number of fittings.

These and other objects and advantages are attained by the means described herein and illustrated upon the accompanying drawing, in which:

Fig. 1 is a perspective view of a T-fitting.

Fig. 2 is a perspective view of an L-fitting.

Fig. 3 is a perspective view showing one T-fitting superposed upon another T-fitting to provide a cross with two side outlets.

Fig. 4 is a perspective view showing a T-fitting with an L-fitting superposed thereupon to provide a cross with one side outlet.

Fig. 5 is an elevational view, partly in cross section of an L-fitting provided with interior threads.

Fig. 6 is an elevational view, partly in cross section, showing a modified form of T-fitting with a length of railing or pipe extending therethrough.

The present invention answers the need for inexpensive, practical, and sturdy fittings suitable for making a variety of connections and joints in the construction of railings, fences, and the like.

Referring to the drawings, Fig. 1 illustrates a T-shaped pipe or rail fitting 8, comprising a pair of axially aligned horizontal sockets 9 and 10 and an intermediate depending sleeve 12 at substantial right angles to the axis of the sockets 9 and 10. The diameters of the sockets and the sleeve may be substantially identical, as shown, or the sockets, in some cases, may be of a smaller diameter than the sleeve.

The fitting 8 is provided with an intermediate transverse slot 13, the lower wall or seat 14 of the slot being disposed on a plane shared by the axis of the sockets 9 and 10 and normal to the

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axis of sleeve 12, while the parallel side walls 15 of the slot are on planes tangent to the outer diameter of the depending sleeve 12. In other words, the slot 13 has a depth substantially half the diameter of the sockets 9 and 10 and a width corresponding to the diameter of the sleeve 12. The slot 13 is provided for the purpose of combining two similar fittings into a cross with one or two side outlets, as shown in Figs. 3 and 4, wherein the axes of the various sockets are coplanar. In this combination, the seat 14 of fitting 8 will abut a similar seat on the second fitting.

The bore 16 of the fitting 8, Fig. 1, may extend all the way through the sleeve 12 while the sockets 9 and 10 may be provided with blind holes 18. The sockets and sleeve may be interiorly screw threaded, as at 19 and 20, for receiving the threaded ends of horizontal and vertical pipes or rods, respectively, in the construction or fabrication of guard rails, fence frames, and the like.

A modified form of the T-fitting is shown at 108, in Fig. 6. The general configuration of this fitting is substantially the same as fitting 8, Fig. 1, with the exception that smooth bores 118 and 116 are provided in the sockets 109 and 110 and the sleeve 112, respectively. As shown in Fig. 6, the bore 118 may extend entirely through the sockets 109 and 110, to provide an uninterrupted passage for receiving therethrough the horizontal pipe or rod 28, which may be fixed against displacement by suitable means, such as the lock pins 30 transversing the fitting 108 and the pipe or rod 28. A vertical pipe or rod 29 may be inserted in the sleeve 112 and likewise held against displacement by means of a pin 31. Used in this manner, the fitting 108 serves as a T-fitting.

By projecting the vertical pipe or rod 29 entirely through the fitting 108, said fitting may be used as a cross, since the socket members 109 and 110 will be adapted to receive the ends of horizontally disposed pipes or rods, such as 28. Used in this manner, the fitting 108 will support an intermediate railing of a guard rail or fence structure, the top railing of which may be assembled as shown in Fig. 6.

In some cases it may be desirable to provide the sockets with interior screw threads, as at 219, and the sleeve with a smooth bore, as in Fig. 3, wherein is shown two T-fittings in combination, one inverted and superposed upon the other, with their respective sleeves in axial alignment and the axes of the sockets coplanar. In this modified form, the T-fittings are indicated at 208, while their integral sockets are shown

at 209—210 and the sleeves at 212. This combination or assembly provides a cross with two co-axial side outlets. A pipe or rod may be disposed through the vertical sleeves 212 and held against displacement by means of pins projecting through the apertures 32. Horizontal pipes or rods with threaded ends may be screwed into the interiorly threaded sockets 209 and 210. Other parts of the fittings 208 are indicated with the same reference numerals as like parts of the fitting 8 with the numeral 2 placed before each reference numeral.

In Fig. 2 is shown an L-fitting 33 similar in construction to the T-fittings previously described, but having only one socket, indicated at 34. The socket 34 and the vertical sleeve 35 may each be provided with a smooth bore, as indicated at 36 and 38 respectively. The corner of the L is provided with a seat or step 39, said seat being on a plane shared by the axis of the socket 34 and normal to the axis of sleeve 35, while a transverse vertical wall 40 is tangent to the outer diameter of the sleeve 35. As will be understood, the width and length of the seat 39 correspond to the diameter of the sleeve 35.

The L-fitting 33 may be used at the end of a guard rail or fence frame in engagement with a vertical and a horizontal pipe or rod carried by the sleeve 35 and the socket 34, or it may be used in combination with a T-fitting to form a cross with one side outlet, as delineated in Fig. 4. In this combination, the L-fitting 33 is inverted and superposed upon the T-fitting 108 shown in Fig. 6. As will be understood, the seat 39 of the L-fitting 33 abuts the seat 114 provided on T-fitting 108, so as to bring the sleeves 35 and 112 into axial alignment, with the axes of the sockets 34, 109, and 110 coplanar. This combination permits of a vertical pipe or rod being projected through the aligned sleeve 35 and 112, while the sockets 34, 109, and 110 are adapted to support horizontal pipes or rods in a fence or railing structure.

Fig. 5 shows a modification of the L-fitting, wherein the socket 134 and the sleeve 135 are provided with interior screw threads as indicated at 136 and 138, respectively, the fitting being shown by the reference numeral 133. The horizontal seat and the vertical side wall are indicated at 139 and 140 respectively.

By combining two L-fittings 33, a right angle assembly is possible. In this combination one fitting is inverted and superposed upon the other, with the seats 39 in face to face abutment, the sockets 34 at right angles and the sleeves 35 in vertical alignment. The L-fitting 33 may be provided with apertures 41 for receiving suitable pins for the purpose of fixing rods or pipes against displacement. It is also possible, by using two L-fittings 33, to form a cross, in which the axes of the sleeves 35 and the sockets 34 are at right angles.

As will be obvious to those skilled in the art, the flexibility of the fittings herein described permit of a wide range of combinations in the construction, fabrication, or installation of rails, fences, and other structures of similar nature, thus making it possible for a dealer or distributor to stock only a small number of parts.

It is to be understood, of course, that various structural changes and modifications may be made within the scope of the appended claims, without departing from the spirit of the invention.

What is claimed is:

1. A coupling of the type described which comprises, a first and a second socket, said sockets being integrally formed, said sockets meeting at a right angle to form a junction section between said sockets, said junction section terminating at a surface perpendicular to the axis of the first socket and in a plane including the axis of the second socket, the second socket terminating at a surface perpendicular to the axis of the second socket and tangent to the outer surface of the first socket, said junction section forming a platform between the sockets for receiving a similar platform of a second coupling of the type described.

2. A coupling of the type described which comprises, a first and a second hollow cylindrical socket receptive of hand rail elements, said sockets being integrally formed, said sockets meeting at a right angle to form a junction section between said sockets, said junction section terminating at a surface perpendicular to the axis of the first socket and in a plane including the axis of the second socket, the second socket terminating at a surface perpendicular to the axis of the second socket and tangent to the outer surface of the first socket, said junction section forming a platform for receiving a similar platform of a second coupling of the type described, the bore of at least one of said sockets extending through said junction section.

3. A coupling of the type described which comprises, a first and a second hollow cylindrical socket receptive of hand rail elements, said sockets being integrally formed, said sockets meeting at a right angle to form a junction section between said sockets, said junction section terminating at a surface perpendicular to the axis of the first socket and in a plane including the axis of the second socket, the second socket terminating at a surface perpendicular to the axis of the second socket and tangent to the outer surface of the first socket, said junction section forming a platform for receiving a similar platform of a second coupling of the type described, the bores of the sockets meeting at the junction section.

4. A coupling of the type described which comprises, a first, a second, and a third cylindrical socket, all receptive of hand rail elements, the second and third sockets being coaxial, said sockets being integrally formed, the first socket meeting the second and the third sockets at a right angle to form a junction section between said sockets, said junction section being cut away at a surface perpendicular to the axis of the first socket in a plane including the axis of the second and third sockets and at a pair of surfaces perpendicular to the axis of the second and third sockets tangent to opposite outer surfaces of the first socket, said junction section forming a platform for receiving a platform of a second coupling of the type described.

5. A coupling of the type described which comprises, a first, a second, and a third hollow cylindrical socket, all receptive of hand rail elements, the second and third sockets being coaxial, said sockets being integrally formed, the first socket meeting the second and the third sockets at a right angle to form a junction section between said sockets, said junction section being cut away at a surface perpendicular to the axis of the first socket in a plane including the axis of the second and third sockets and at a pair of surfaces perpendicular to the axis of the second

and third sockets tangent to opposite outer surfaces of the first socket, said junction section forming a platform for receiving a similar platform of a second coupling of the type described, the bore of the first socket extending through the junction section.

6. A coupling of the type described which comprises, a first, a second, and a third hollow cylindrical socket, all receptive of hand rail elements, the second and third sockets being coaxial, said sockets being integrally formed, the first socket meeting the second and the third sockets at a right angle to form a junction section between said sockets, said junction section being cut away at a surface perpendicular to the axis of the first socket in a plane including the axis of the second and third sockets and at a pair of surfaces perpendicular to the axis of the second and third sockets tangent to opposite outer surfaces of the first socket, said junction section forming a platform for receiving a similar platform of a second coupling of the type described, the first and second sockets being closed at said surfaces, the bore of the first socket extending through the junction section.

7. A coupling of the type described which comprises, a first, a second, and a third hollow cylindrical socket, the second and third sockets being coaxial, said sockets being integrally formed, the first socket meeting the second and the third sockets at a right angle to form a junction section between said sockets, said junction section being cut away at a surface perpendicular to the axis of the first socket in a plane including the axis of the second and third sockets and at a pair of surfaces perpendicular to the axis of the second and third sockets tangent to opposite outer surfaces of the first socket, said junction section forming a platform for receiving a similar platform of a second coupling of the type described, the bore of said first, second and third sockets extending through the junction section to permit a rail to pass through said junction section.

8. The combination of a pair of couplings of the type described each of which comprises, a first and a second cylindrical socket receptive of hand rail elements, said sockets being integrally formed, said sockets meeting at a right angle to form a junction section between said sockets, said junction section terminating at a surface perpendicular to the axis of the first socket and in a plane including the axis of the second socket, the second socket terminating at a surface perpendicular to the axis of the second socket and tangent to the outer surface of the first socket, said junction section forming a platform for receiving a similar platform of the other coupling, said couplings being mounted with said platforms abutting, the first socket of one coupling being coaxial with the first socket of the other coupling.

9. The combination of a pair of couplings of the type described each of which comprises, a first and a second hollow cylindrical socket receptive of hand rail elements, said sockets being integrally formed, said sockets meeting at a right angle to form a junction section between said sockets, said junction section terminating at a

surface perpendicular to the axis of the first socket and in a plane including the axis of the second socket, the second socket terminating at a surface perpendicular to the axis of the second socket and tangent to the outer surface of the first socket, said junction section forming a platform for receiving a similar platform of the other coupling, the bore of the first socket extending through the junction section, said couplings being mounted with said platforms abutting, and the first socket of one coupling being coaxial with the first socket of the other coupling.

10. The combination of a first coupling and a second coupling of the class described, the first coupling comprising a first and a second cylindrical socket, said sockets being integrally formed, said sockets meeting at a right angle to form a junction section between the sockets, said junction section terminating at a surface perpendicular to the axis of the first socket and in a plane including the axis of the second socket, the second socket terminating at a surface perpendicular to the axis of the second socket and tangent to the outer surface of the first socket, said junction section forming a platform for receiving a platform of the second coupling, the second coupling comprising a third, a fourth and a fifth cylindrical socket, the fourth and fifth sockets being coaxial, the sockets of the second coupling being integrally formed, the third socket meeting the fourth and fifth sockets at a right angle to form a junction section between the sockets, said junction section being cut away at a surface perpendicular to the axis of the third socket along the axis of the fourth and fifth sockets and at a pair of surfaces perpendicular to the axis of the fourth and fifth sockets tangent to opposite outer surfaces of the third socket, said junction section forming a platform for receiving the platform of the first coupling, said said couplings being mounted with said platforms abutting, the first socket being coaxial with the third socket.

11. The combination of a pair of couplings of the type described each of which comprises, a first, a second, and a third cylindrical socket, all receptive of hand rail elements, the second and third sockets being coaxial, said sockets being integrally formed, the first socket meeting the second and the third sockets at a right angle to form a junction section between the sockets, said junction section being cut away at a surface perpendicular to the axis of the first socket in a plane including the axis of the second and third sockets and at a pair of surfaces perpendicular to the axis of the second and third sockets tangent to opposite outer surfaces of the first socket, said junction section forming a platform for receiving a similar platform of the other coupling, said couplings being mounted with said platforms abutting, the first socket of one coupling being coaxial with the first socket of the other coupling, the axis of the second and third sockets of one coupling being perpendicular to the axis of the second and third sockets of the other coupling.

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No references cited.