

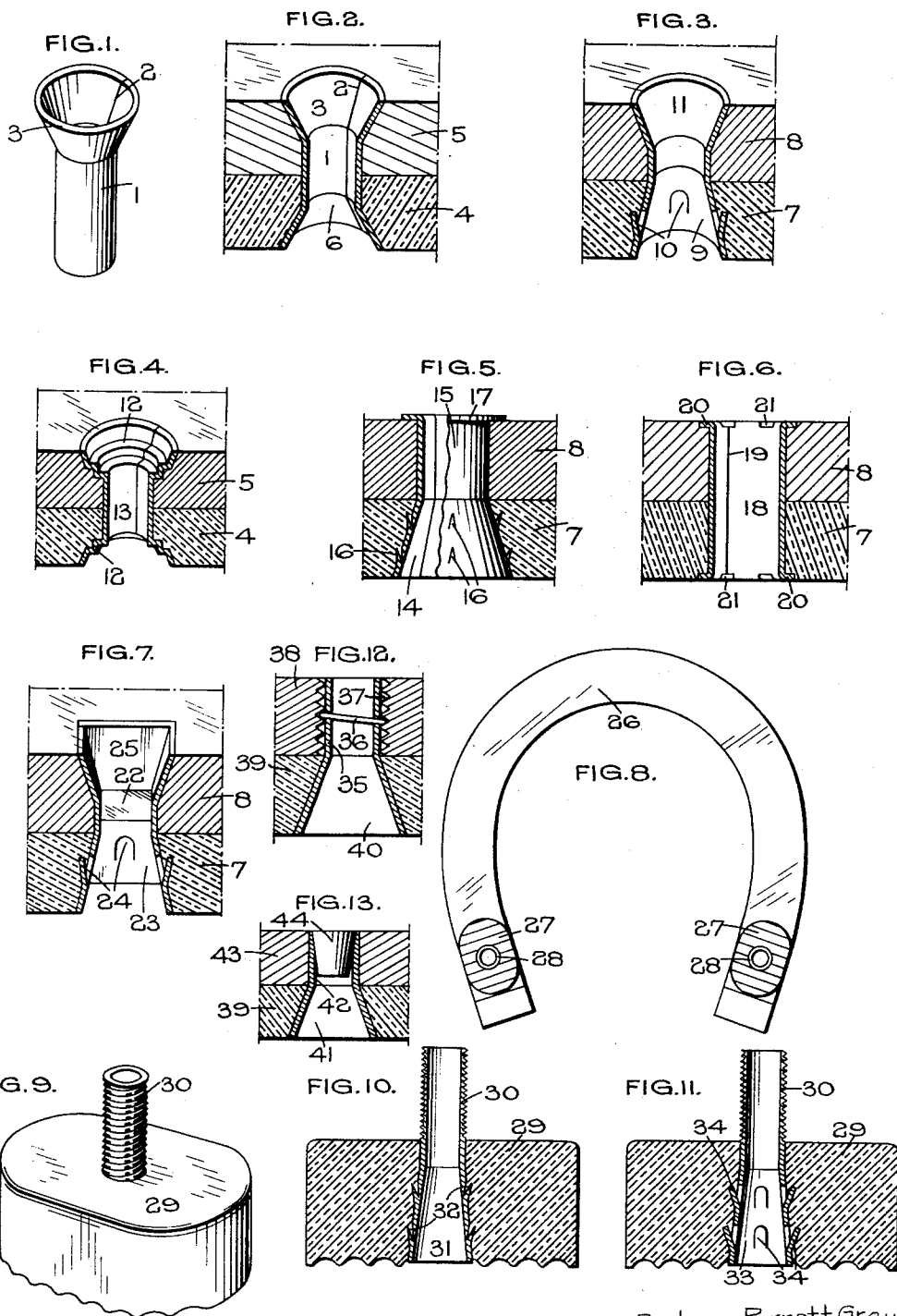
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RIVET

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RIVET

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This invention relates to rivets for connecting anti-slip or anti-concussion pads to horse shoes and has for its object to provide a rivet which will be cheap to construct and effective in use, and which can be secured and retained in position with greater ease than is possible with rivets of ordinary construction.

Referring to the drawing:—

Figure 1 is a perspective view showing one construction.

Figure 2 is a perspective sectional view showing a further construction.

Figure 3 is a sectional perspective view showing a modification.

Figure 4 is a sectional perspective view showing a still further modification.

Figure 5 shows partly in section a still further modification.

Figure 6 is a sectional view of a further alternative construction.

Figure 7 is a sectional perspective view of a modification of the construction illustrated in Figure 3.

Figure 8 is a plan view showing a horse shoe with anti-slip or anti-concussion pads secured thereto by means of rivets according to the present invention.

Figure 9 is a perspective view showing a pad provided with a rivet according to the present invention.

Figure 10 is a sectional view showing the method of attachment between the rivet and pad illustrated in Figure 9.

Figure 11 is a slight modification of the construction illustrated in Figure 10.

Figure 12 shows a further modification of the construction illustrated in Figure 10.

Figure 13 shows a still further modification.

In the construction illustrated in Figure 1 the rivet 1 is of tubular form, split longitudinally at 2 and formed from a metal blank rolled into cylindrical form, one end 3 being expanded into an inverted part conical head.

In Figure 2 the rivet illustrated in Figure 1 is applied to connect an anti-slip or anti-concussion pad 4 of rubber to a horse shoe 5, the rivet being inserted through holes in the members to be connected, and the conical head portion 3 engaging a correspondingly formed portion 6 of the hole in the shoe 5, whilst the other end 7 of the rivet is expanded to connect the parts and prevent the pad 4 becoming detached. The rivet may be expanded by a suitable tool, and if desired the expanded end initially formed on the rivet may be inserted in the pad 4, the

rivet being expanded into the hole in the shoe 5.

In the construction illustrated in Figure 3 a slightly modified form of rivet is used to connect a pad 7 to a horse shoe 8, this rivet having an expanded end portion 9 of length corresponding with the thickness of the pad 7, and a number of outwardly distorted tongues of metal 10 are provided in this end 9 to engage or bite into the material of the pad. These tongues are formed by partially severing portions of the rivet such as by forming inverted U shaped cuts at suitable positions, the partially severed tongues being then distorted outwardly as shown in section in Figure 3. The rivet may be secured in the pad prior to the application to the shoe, and the end 11 of the rivet may then be expanded into the hole in the shoe to secure the rivet in position and connect the pad to the shoe.

In Figure 4 is illustrated a slight modification of the construction illustrated in Figure 2, the expanded ends 12 of the rivet 13 being stepped or shouldered by using a correspondingly shaped expanding tool when forming the head upon one end of the rivet and when expanding the other end of the rivet to connect the members.

In the construction illustrated in Figure 5 the rivet is provided with a part conical portion 14 of length equal to the thickness of the pad 7, and with a cylindrical portion 15 passed through a corresponding hole in the shoe 8, the end 10 being provided with teeth or projections 16 adapted to bite into the material of the pad and improve the grip thereon. In this construction the teeth 16 are formed by displacing some of the metal of the end 14 of the rivet outwardly in the form of barbs, and when connected in the pad these teeth or barbs engage in the material thereof and assist in preventing the rivet pulling through the relatively flexible material of the pad.

In this construction the rivet is retained in position by flanging the end over the shoe as at 17.

In the modification illustrated in Figure 6 the members 7 and 8 are connected by a tubular rivet 18 of cylindrical form and split longitudinally as at 19, the rivet being expanded or flanged at each end as at 20 to engage over the edge of the hole through which the rivet is passed. The ends of the rivet are serrated or castellated by cutting away portions 21 in order that the flanging over operation may be facilitated. The members 7 and 8 may be recessed adjacent the aperture for the rivet so that the

end of the rivet when flanged over is substantially flush with the surface of the member as illustrated in Figure 6.

In the modification illustrated in Figure 7 a rivet of square or rectangular section is used for connecting the members 7 and 8, this rivet 22 being of similar general construction to that illustrated in Figure 3 with an expanded portion 23 and outwardly distorted tongues of metal 24 for engagement in the pad 7, and an expanded end 25 to retain the rivet in position and to connect the members. In this construction the rivet is square or rectangular but may be of any non-circular section, being formed from a strip or blank of metal by a suitable pressing or stamping operation.

With a rivet of non-circular section a single rivet can be used to connect two or more members and at the same time prevent relative rotation or twisting movement between them when in use. When the members are connected by a single rivet of circular section there is a possibility that the members so connected may twist out of position during use, but with a rivet such as 22 the members may be connected at any selected angle after which the rivet secures them against angular or other movement.

In Figure 8 is illustrated a horse shoe 26 having anti-slipping or anti-concussion pads 27 each secured by means of a tubular rivet 28 in accordance with the present invention.

In Figure 9 an anti-slipping pad or stud 29 is provided with an attachment rivet 30 by means of which the pad or stud may be secured to the horse shoe, and the projecting portion of this rivet is screw threaded externally for engagement with an internally screw threaded hole in the shoe.

In Figure 10 is illustrated one method of attaching the rivet to the pad or stud 29 by expanding the end 31 and by providing outwardly distorted teeth or barbs 32 on this end as described with reference to the construction illustrated in Figure 5.

In the alternative construction illustrated in Figure 11 the rivet is provided with an expanded end 33 in which are formed outwardly distorted teeth 34 formed as described with reference to the tongues 10 in the construction illustrated in Figure 3.

In the construction illustrated in Figure 12 the projecting portion 35 of the rivet is cylindrical, with a smooth external surface, and a transverse pin 36 is secured in this portion as shown, the ends of the pin projecting slightly beyond the outer surface.

These projecting ends are adapted for engagement with the internal screw thread 37 in the hole in the horse shoe 38 and the pad 39 in which is mounted the enlarged end 40 of the rivet is attached to the shoe by screwing the portion 35 of the rivet into the screw thread 37. Two or more transverse pins may be provided if necessary, at spaced points along the length of the portion 35. This is considerably cheaper than screw threading the projecting portion as in the construction shown in Figures 9 to 11.

In the construction illustrated in Figure 13 the rivet is formed initially with an expanded end 41 and a projecting portion 42, this latter portion being cylindrical prior to the application of the rivet to the shoe.

The expanded end is mounted in the pad 39, and to secure the latter to the shoe 43, the projecting portion 42 of the rivet is inserted in a

cylindrical hole in the shoe, a tapered plug 44 being subsequently driven or forced into the end of the portion 42 to the position illustrated in Figure 13.

The plug 44 distorts the end of the rivet and slightly expands the hole in the shoe, the metal of the rivet being forced into intimate contact with the metal of the shoe, so that the pad and the shoe are permanently secured together.

The rivets illustrated in Figures 1 to 6 and 13 are of circular section, but they may be of square or any other non-circular section as illustrated in Figure 7.

When rivets according to the present invention are applied for connecting an anti-slip or anti-concussion pad to a horse shoe the end of the rivet located within the material of the pad will wear down at approximately the same rate as the pad, and the attachment between the pad and the shoe decreases only slightly with wear and is effective throughout the whole life of the pad.

In addition the rivet forms a metal stud embedded in the pad and consequently improves the gripping properties of the pad, whilst by forming the rivet of hollow construction road grit or other material enters the centre of the rivet and forms an additional gripping or anti-slip means.

Further advantages of the rivets according to the present invention are that the rivet is cheap to construct initially, is easily applied to connect the members, is relatively of light weight compared with solid rivets as commonly used, and when formed by rolling or pressing from a blank of material, is easily and cheaply manufactured.

What I claim then is:—

1. In combination with an anti-slip or anti-concussion pad, a tubular rivet for connecting said pad to a horse shoe, said rivet being split continuously from one end to the other, and having one end engaging with the pad, said end being open and exposed at the underside of the pad to improve the anti-slip properties and the other end of said rivet projecting from the pad for engaging the shoe.

2. In combination with an anti-slip or anti-concussion pad, a tubular rivet for connecting said pad to a horse shoe, said rivet being split continuously from one end to the other and having an expanded end engaging with the pad said end being open and exposed at the underside of the pad to improve the anti-slip properties and a further expanded portion at the other end for engaging with the shoe.

3. In combination with an anti-slip or anti-concussion pad, a tubular rivet for connecting said pad to a horse shoe, said rivet having an expanded end for engaging with the pad, said end being open and exposed at the underside of the pad to improve the anti-slip properties, lugs forced from the surface of said expanded end to project therefrom and to engage in the body of the pad, and the other end of said rivet projecting from the pad for engaging the shoe.

4. In combination with an anti-slip or anti-concussion pad, a tubular rivet for connecting said pad to a horse shoe, said rivet being split longitudinally, from one end to the other, and having an expanded end engaging with the pad, said end being open and exposed at the underside of the pad to improve the anti-slip properties, portions forced from the surface of said expanded end to project therefrom and to

engage in the material of the pad and an expanded portion at the other end of the rivet for engaging the shoe.

shank portion for engaging the shoe, and a transverse pin secured in said shank portion, the ends of said pin projecting from the surface of said shank portion for engagement with a screw threaded hole in the shoe.

5 In combination with an anti-slip or anti-concussion pad, a tubular rivet for connecting said pad to a horse shoe, said rivet having an expanded end engaging with the pad, said end being open and exposed at the underside of the pad to improve the anti-slip properties, and an externally screw threaded portion of said rivet projecting from said pad for engaging in the shoe.

80 8. In combination with an anti-slip or anti-concussion pad, a tubular rivet for connecting said pad to a horse shoe, said rivet having an expanded end for engaging with the pad, said end being open and exposed at the underside of the pad to improve the anti-slip properties, a shank portion for engaging the shoe, a transverse pin secured in said shank portion, the axis of said pin being inclined to the longitudinal axis of the shank portion, and the ends of said pin projecting from the surface of said shank portion for engagement with a screw threaded hole in the shoe.

15 6. In combination with an anti-slip or anti-concussion pad, a tubular rivet for connecting said pad to a horse shoe, said rivet having an expanded end engaging with the pad, said end being open and exposed at the underside of the pad to improve the anti-slip properties, lugs forced from the surface of said expanded end to project therefrom and to engage in the material of the pad, said lugs comprising tongues of metal integral with, but partially severed from, said expanded end, and an externally screw threaded portion of said rivet projecting from said pad for engaging in the shoe.

85 9. In combination with an anti-slip or anti-concussion pad, a tubular rivet for connecting said pad to a horse shoe, said rivet having an expanded end for engaging with the pad, said end being open and exposed at the underside of the pad to improve the anti-slip properties, a shank portion for engaging the shoe, and a transverse pin secured in said shank portion, the ends of said pin projecting from the surface of said shank portion for engagement with a screw threaded hole in the shoe.

20 7. In combination with an anti-slip or anti-concussion pad, a tubular rivet for connecting said pad to a horse shoe, said rivet having an expanded end for engaging with the pad, said end being open and exposed at the underside of the pad to improve the anti-slip properties, a

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