Dec. 15, 1931. W. T. BELL ET AL 1,837,099

MEANS FOR MARKING LINES ON ROADS, TENNIS COURTS, AND THE LIKE

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Fig. 1.

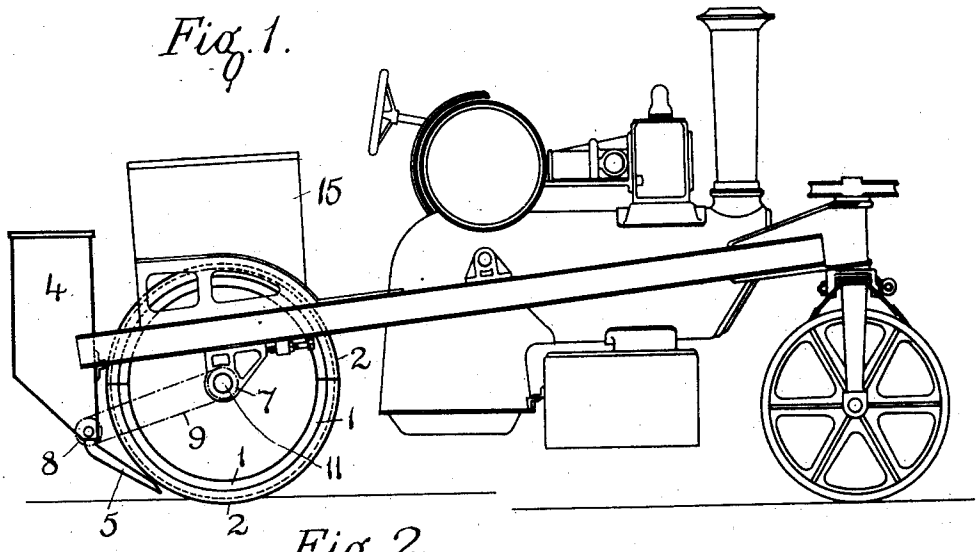


Fig. 2.

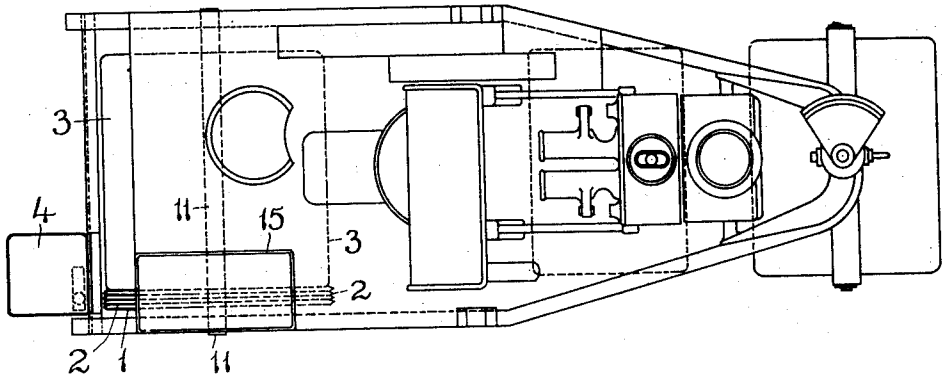
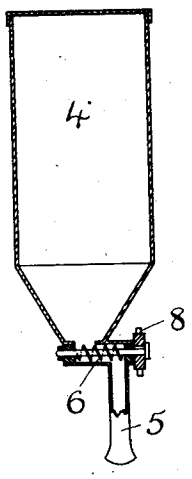


Fig. 5.



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Fig. 3.

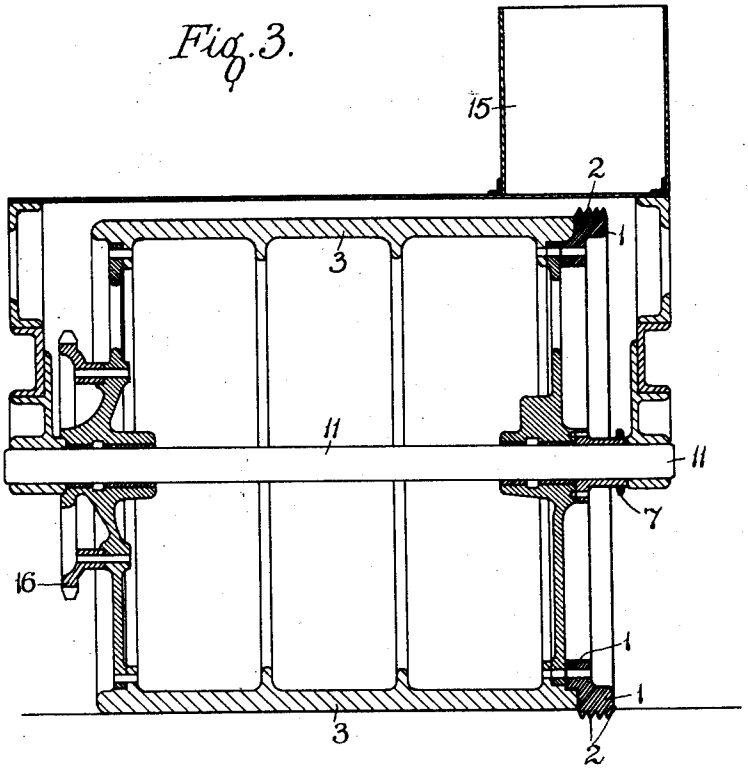
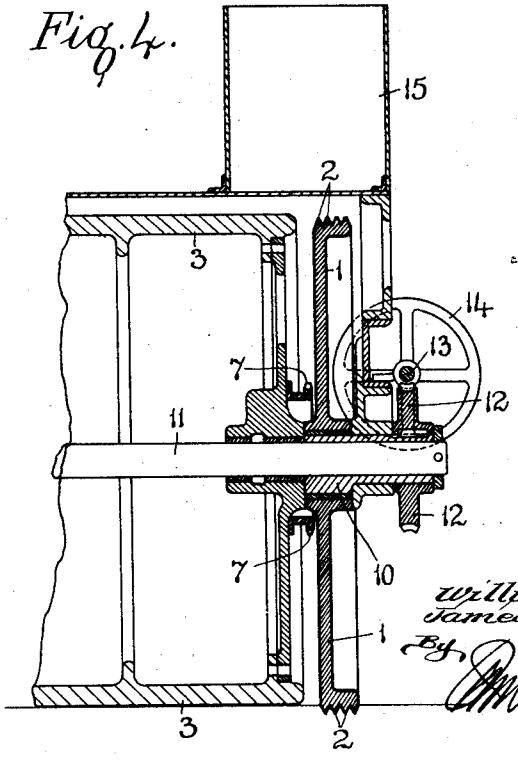


Fig. 4.



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UNITED STATES PATENT OFFICE

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MEANS FOR MARKING LINES ON ROADS, TENNIS COURTS AND THE LIKE

Application filed September 7, 1928, Serial No. 304,518, and in Great Britain September 12, 1927.

This invention relates to that class of apparatus or machine for making grooves or indentations in a road surface, tennis court or the like and filling such grooves or indentations with a marking material in a hot and plastic condition in order to mark lines on such road, tennis court or the like.

For the purpose of our invention we mount on a road wheel or roller of a vehicle or on its axle a roller having a series of V, U or other shaped projections or ridges, or a series of pyramids, half spheres or the like on its periphery for impressing correspondingly shaped recesses in the ground, and we provide a hopper containing a composition and a feed pipe or pipes leading from the hopper and positioned to deliver the composition into the recesses formed by the roller. We may employ weights to act upon the grooved roller to press it into the road or other surface, and, when such grooved roller is connected to the axle, we may employ means for raising it from the ground.

Figure 1 is a side view and Figure 2 a plan of sufficient of a road roller showing one embodiment of our invention applied.

Figure 3 is a section of the back roller of same.

Figure 4 is a section of part of a roller showing a modified construction and Figure 5 a section of one form of hopper.

According to Figures 1, 2, 3 and 5 of the annexed drawings, we form a roller 1 with a series of V, U or other shaped projections 2 or ridges extending around its periphery and such roller 1 is secured to the rear roller 3 of a steam or motor road roller by bolts, the projections extending beyond the circumference of the roller 3, and in this case the roller 1 is formed in halves so that it can be removed from the vehicle when not required.

Behind the roller 1 is positioned a hopper 4 provided with a pipe or outlet 5, or pipes or outlets, and preferably a feed screw 6 is supplied to regulate the outlet, and such screw may be driven from the rear wheel through sprockets 7, 8 and a chain 9, and pressure may be applied to the inside of the hopper to force the contents from the hopper.

Means may be provided for raising or lowering the roller 1 so as to remove it from the ground when not required and a convenient means is illustrated in Figure 4 and consists in mounting the roller 1 on an eccentric bearing 10 on the main axle 11, and to the eccentric bearing 10 is keyed a worm wheel 12 meshing with a worm 13 operable by a hand wheel 14. The bearing for the worm 13 and hand wheel 14 is carried by the frame of the roller, so that the eccentric bearing 10 can be rotated on the axle 11 by the hand wheel 14 to raise or lower the roller 1.

15 is a container in which may be placed weighting material for increasing the pressure of the roller 1 into the ground.

There may be two or more hoppers 4, each having a different coloured material for the lines so that several different coloured lines can be laid at the same or different times.

We preferably employ a substance which is plastic when kept air tight but rapidly sets on exposure to the air, but a substance or plastic fluid which is rendered fluid or semi-fluid with heat, say at temperatures between 212° to 300° F., may be employed.

Although we have shown the roller 1 as applied to or forming part of an ordinary tandem road roller, it can be equally applied to a three-wheel roller or the roller 1 and hopper 4 with other ordinary wheels can be mounted on a frame so as to form a separate unit which can be used alone or attached to another vehicle such as a road roller.

In place of the V, U or other shaped ridges, we may form a series of pyramids, half spheres or other shaped projections.

For a composition which is rendered plastic by heat, we may form the wheel 1 hollow and heat same by means such as a powerful blow lamp or other source of heat which may be applied either internally or externally to the roller 1 and the hopper 4 may be also provided with heating means which may be the same source of heat as for the roller or it may be jacketed and heated by hot water or steam.

The roller 1 may be rotated by the friction of the road or it may be driven from the vehicle or other source of power. As shown in Figures 1, 2 and 3 the roller 1 is secured to the ordinary roller 3 which is driven from

the driving mechanism through a chain engaging the sprocket wheel 16 as is usual but in Figure 4 the wheel 1 is freely mounted on the eccentric bearing 10 and would be rotated by the friction of the road or the wheel 1 could be driven from roller 3 by means of driving pins working in elongated holes in the wheel 1 to allow for movement due to the eccentric.

In use, the roller 1 is forced down into the road or other surface, when on drawing the apparatus and roller 1 along, a groove or grooves, holes or depressions corresponding to the face of the roller 1 will be formed in the road surface. As the roller 1 leaves the groove or grooves formed in the road, the hot or other plastic fluid will pass from the hopper 4 and is laid in the groove or grooves, thus leaving inlaid strips of white or other coloured lines. The plastic liquid sets hard on exposure to the air or on cooling.

By employing a series of grooves for each line practically a solid surface is formed.

What we do claim as our invention and desire to obtain by Letters Patent is:—

1. In an apparatus of the class described, a frame, a cylindrical roller journaled therein for contact with the surface to be traversed, a second roller at one end of and coaxial with the first-named roller and rotatable therewith, said second roller having peripheral surface-indenting means projecting beyond the periphery of the first mentioned roller, a hopper to contain a marking composition, and means for delivering said composition from said hopper to the indented portion of the surface traversed, whereby simultaneous rolling, indenting and marking of said surface is effected.

2. In combination with a self-propelled road-rolling machine having a transverse road-roller, a relatively narrow roller at one end of and coaxial with the first mentioned roller having peripheral road-indenting means, said rollers being simultaneously rotatable, and means operable during said rotation to deliver marking composition to indentations made by the second roller, whereby simultaneous rolling, indenting and marking of the road surface is effected.

3. A combination according to claim 2 including means whereby the second mentioned roller may be shifted out of operative position when not required for use.

4. A combination according to claim 2 including an eccentric mounting the second mentioned roller, and means operable to move said eccentric about the axis of the first mentioned roller so that the second mentioned roller may be shifted out of operative position when not required for use.

5. In an apparatus of the class described, a frame, a cylindrical roller journaled therein for contact with the surface to be traversed, a surface-indenting roller at one end of and co-axial with the first-named roller and rotatable therewith, a hopper to contain a marking composition, and means for delivering said composition from said hopper to the indented portion of the surface traversed, said surface-indenting roller being a double diametered annulus of which the smaller diametered portion fits within and is attached to one end of the first-named roller.

6. In an apparatus of the class described, a frame, a cylindrical roller journaled therein for contact with the surface to be traversed, a surface-indenting roller at one end of and co-axial with the first-named roller and rotatable therewith, a hopper to contain marking composition, and means for delivering said composition from said hopper to the indented portion of the surface traversed, said surface-indenting roller being a double diametered annulus of which the smaller diametered portion fits within and is attached to one end of the first-named roller, and of which the portion of larger diameter is circumferentially grooved and extends beyond the periphery of the first-named roller.

In testimony whereof we have hereunto set our hands.

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