

[54] SUCTION DEVICE

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[51] Int. Cl. **B65b 31/04**

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15/422, 1.7, 340; 141/65, 7

[56]

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Primary Examiner—Herbert F. Ross

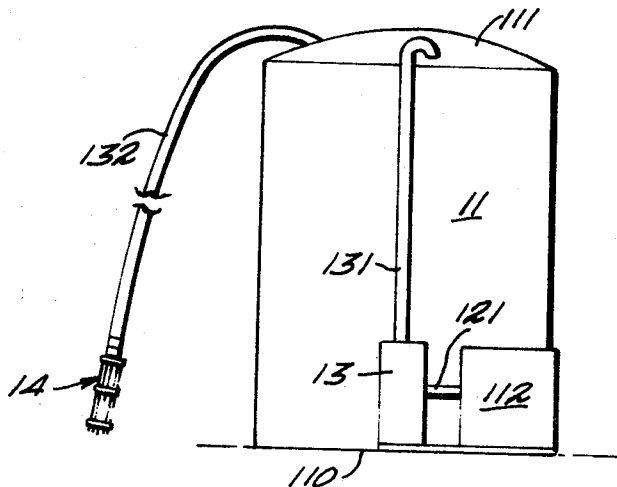
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[57]

ABSTRACT

The invention is directed to a suction device for removing powdered ballast from a deflated vehicle tire, comprising a tube insertable in the ballast for removal thereof by suction and a series of draft tubes on the periphery of the suction tube and terminating below the mouth of the suction tube to agitate the powdered ballast and deliver a draft of air to effect complete removal of the ballast from a tire carcass.

1 Claim, 5 Drawing Figures



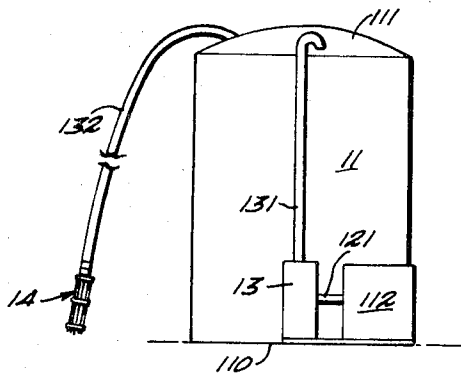


Fig. 1

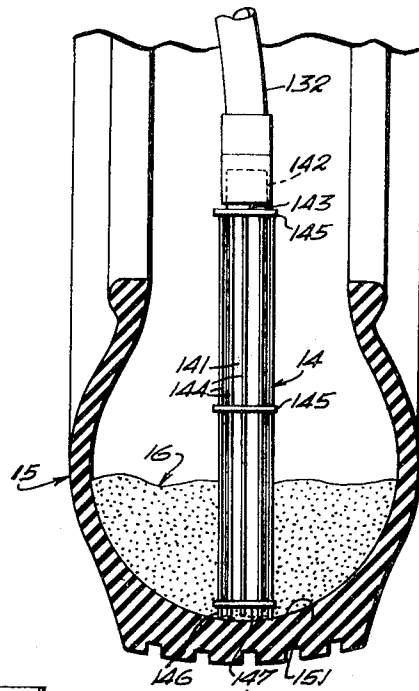


Fig. 2

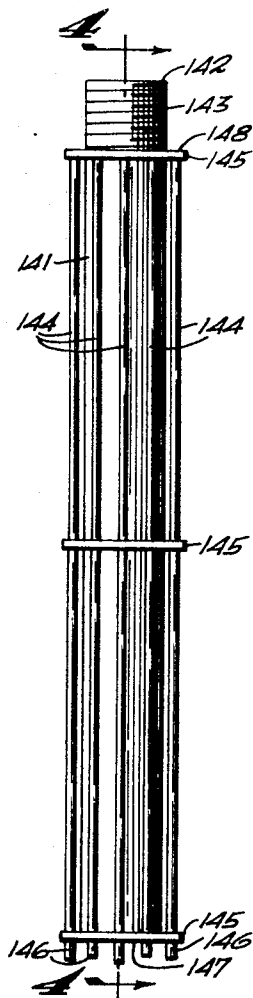


Fig. 3

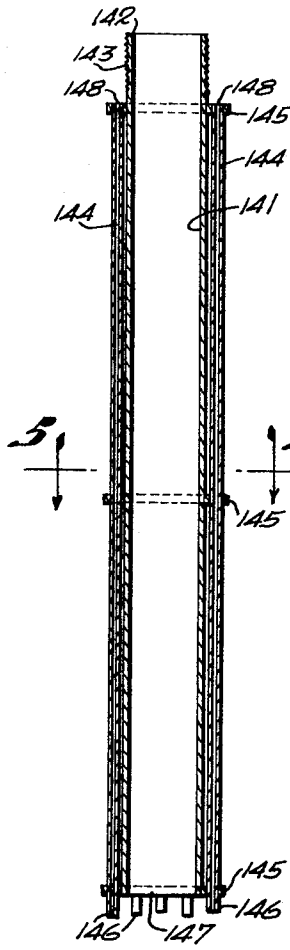


Fig. 4

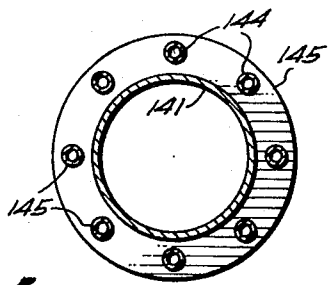


Fig. 5

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SUCTION DEVICE

It has become the practice in recent years to increase the stability of vehicles doing heavy work by adding powdered ballast having a high specific gravity to the interior of the pneumatic tires which support the vehicle. When injuries occur to such tires, it becomes necessary to remove the ballast to effect the repair of the tire, if that be possible, or, in any event, to recover all of the ballast, which is expensive. Devices of various sorts have been proposed to effect a complete removal of the ballast, but none of them prior to my invention has attained this desideratum.

The object of my invention is to provide a nozzle which is connectable with suction means and which can be inserted into a tire carcass for the removal and the recovery of all of the ballast remaining within the deflated tire.

Referring now to the drawings,

FIG. 1 is a side elevational view, somewhat schematic, of the various elements required to utilize the device of my invention;

FIG. 2 is a sectional view of a tire carcass with a residue of dry ballast showing the positioning of my device for the removal thereof;

FIG. 3 is a side elevational view of my device;

FIG. 4 is a sectional view of my device along the lines 4—4 of FIG. 3;

FIG. 5 is a sectional view of my device along the lines 5—5 of FIG. 4;

Referring now to FIG. 1, the operational device includes a ballast container 11 in the form of a cylindrical tank mounted on a base 110 and having a top of hemispherical configuration, 111. Customarily the tank is mounted on a vehicle to make it transportable, but the vehicle is not shown.

Mounted in operational relationship to the container 111 is a power source 112 which may be a conventional internal combustion engine connected by a drive shaft 121 to a suction pump 13. Connecting the suction pump 13 with the container 11 is a pipe 131 leading to the top of the container. Leading from the top of the container is a pipe 132, customarily in the form of flexible hosing, shown in the drawing connected to my nozzle 14.

Referring now to FIG. 2, a tire casing 15 is shown in section containing a residue 16 of dry ballast. Prior to the insertion of my nozzle 14 into the interior of the tire

carcass, it is necessary to separate the bead of the tire from the wheel rim, the methods for doing which are well known. Then my nozzle 14 is forced through the opening to the bottom of the dry ballast into contact with the inner wall 151 of the tire casing.

Referring now to FIGS. 3, 4 and 5, my nozzle includes a suction tube 141 with a proximal end 142 with fittings 143, such as threads, adaptable to be connected to the pipe 132. Encircling the suction tube 141 are a series of draft tubes 144 mounted on supporting flanges 145 which are carried by the outer surface of the suction tube 141. It will be noted that the distal ends 146 of the draft tubes 144 terminate below the mouth 147 of the suction tube 141. The purpose of this arrangement is to enable the distal ends 146 of the draft tubes 144 to disturb and break up any caking of the dry ballast 16 and facilitate the passage through the ballast residue of air which enters the draft tubes 144 at their proximal ends 148. This draft of air aerates the dry ballast in the region of the mouth 147 of the suction tube 141 to facilitate its withdrawal through suction through the tube 141 into the container 11.

With the arrangement described, I can effect a very rapid removal of all of the residue of dry ballast within a tire casing.

Having fully described my invention, I claim:

1. Apparatus for removing dry ballast from a vehicle tire comprising, in combination,
 - a suction pump connected with a dry ballast container
 - a flexible hose connected to the container and terminating in
 - a suction tube, adapted to be inserted into a vehicle tire at rest and containing dry ballast, said suction tube having a proximal and a distal end,
 - the proximal end of said tube having means for connection to the flexible hose and,
 - a series of draft tubes mounted exteriorally of said suction tube, each having proximal and distal ends, each end of each of said draft tubes being open,
 - the proximal ends of said draft tubes terminating in the region of the proximal end of the suction tube, and above the surface of the dry ballast in the vehicle tire,
 - the distal ends of said draft tubes terminating beyond the distal end of said suction tube and below the surface of the dry ballast in the vehicle tire.

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