POWER OIL REMOVAL UNIT

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This invention relates to power oil removal units adapted to remove oil from the crankcase of internal combustion engines of automobiles and the like.

One object of this invention is to provide improved, novel, positive, inexpensive means for quickly removing oil from the crankcase of internal combustion engines and the like with a vacuum created in an oil receiver by suction from the intake manifold of the said engine when running.

Another object of this invention is to provide a connector fixed with respect to a motor vehicle having an air suction tube and an oil suction tube therefrom connected to the intake manifold and extending to the low point of the crankcase of the engine of the said vehicle respectively, said connector being adapted to be hermetically engaged by oil receiving means which applies suction from the air suction tube to the oil suction tube and thereby causes oil to be withdrawn from the crankcase into the oil receiving means.

Another object of the invention is to provide a power oil removal unit comprising a connector permanently fixed with respect to a motor vehicle having an air suction tube and an oil suction tube therefrom connected to the intake manifold and extending to the low point of the crankcase of the engine of the said vehicle respectively, the said air suction tube being normally closed at its unconnected end by a suitable valve, and oil receiving means adapted to be removable fixed in hermetically sealed relationship to the said connector over the unconnected ends of the said suction tubes and simultaneously open the said valve at the unconnected end of the air suction tube whereby to create a vacuum in said oil receiving means for removing oil from the crankcase of said engine thereinto.

Another object of this invention is to provide a power oil removal unit comprising a connector permanently fixed with respect to a motor vehicle having an air suction tube and an oil suction tube therefrom connected to the intake manifold and extending to the low point of the crankcase of the engine of the said vehicle respectively, the said air suction tube being normally closed at its unconnected end by a suitable valve, and oil receiving means adapted to be removable fixed in hermetically sealed relationship to the said connector over the unconnected ends of the said suction tubes and simultaneously open the said valve at the unconnected end of the crankcase of said engine thereinto.

Another object of the invention is to provide a connector fixed with respect to a motor vehicle having an air suction tube and an oil suction tube therefrom connected to the intake manifold and extending to the low point of the crankcase of the engine of the said vehicle respectively, the said air suction tube being normally closed at its unconnected end by a suitable valve, and oil receiving means adapted to be removable fixed in hermetically sealed relationship to the said connector over the unconnected ends of the said suction tubes and simultaneously open the said valve at the unconnected end of the crankcase of said engine thereinto.

Another object of this invention is to provide a connector fixed with respect to a motor vehicle having an air suction tube and an oil suction tube therefrom connected to the intake manifold and extending to the low point of the crankcase of the engine of the said vehicle respectively, the said air suction tube being normally closed at its unconnected end by a suitable valve, and oil receiving means adapted to be removable fixed in hermetically sealed relationship to the said connector over the unconnected ends of the said suction tubes and simultaneously open the said valve at the unconnected end of the crankcase of said engine thereinto.

Another object of this invention is to provide a connector fixed with respect to a motor vehicle having an air suction tube and an oil suction tube therefrom connected to the intake manifold and extending to the low point of the crankcase of the engine of the said vehicle respectively, the said air suction tube being normally closed at its unconnected end by a suitable valve, and oil receiving means adapted to be removable fixed in hermetically sealed relationship to the said connector over the unconnected ends of the said suction tubes and simultaneously open the said valve at the unconnected end of the crankcase of said engine thereinto.
A tubular projection 31 formed integral with the connector 10 and extending radially upward therefrom frictionally receives the air suction tube 13 thereover whereby a permanent connection between the connector 10 and a source of suction is accomplished. The vertical bore 32 of the said tubular projection 31 extends downwardly from the top of the said connector 10 until it communicates with the horizontally disposed bore 33 preferably located on the vertical axis of the said connector 10 positioned above the center of the said connector 10 and extending rearwardly from the disk shaped face thereof, all as illustrated in Fig. 2.

A suitable air valve 34 seated in the base of a thimble 35 threaded in the horizontally disposed bore 33 is normally maintained in its closed position by the compression spring 36. The stem of the said air valve 34 is preferably shouldered as indicated in the drawings and has a plunger 37 riveted on the end thereof, the said plunger 37 is cylindrical shaped of a smaller diameter than the inside diameter of the said thimble 35 and has a plurality of radially outwardly disposed guides 38 integral therewith and coextensive therewith to which the centers the said plunger 37 within the said thimble 35. The compression spring 36 reacts against the bottom of the said thimble 35 and engages the said thimble 35 and the ends of the said guides 38 for constantly urging the air valve 34 into its closed position seated in the bottom of the said thimble 35.

A forwardly disposed tubular projection 39 formed integral with the said connector 10 preferably located on the vertical axis of the said connector 10 and spaced below the said air valve 34 serves as the unconnected end of the oil suction line 14. The horizontal bore 40 of the said forwardly disposed tubular projection 39 extends inwardly from the front of the said connector 10 until it communicates with a vertically disposed bore 41 preferably located on the vertical axis of the said connector 10 extending from the bottom of the said connector 10 upwardly a sufficient distance to communicate with the said horizontal bore 40. The bottom of the said vertically disposed bore 41 is suitably finished at 42 to receive a flared tube fitting 43 onto which the flared end of the oil suction tube 14 is connected by means of a flared tube connector nut 44.

The bracket 11 is preferably extended up the back and across the top of the said connector 10 and is formed into a vertically disposed support 110 from which oil receiving means is removable suspended and positioned in hermetically sealed relationship over the unconnected ends of the said air and oil suction tubes 13 and 14 respectively. The said support 110 extends above the top of the said connector 10 and is spaced forward of the vertically disposed tubular projection 31 thereof. The horizontally disposed portion of the said bracket 11 which extends across the top of the said connector 10 is preferably provided with an aperture 114 through which the said vertically disposed tubular projection 31 of the said connector 10 is telescoped as best illustrated in Fig. 2. Although the support 110 is disclosed herein integral with the bracket 11, the said support 110 may be formed integral with the said connector 10 or it may be of a separate piece of material suitably secured to the said connector 10.

The said support 110 is suitably horizontally grooved near the top thereof to provide a pair of spaced vertically disposed tabs 45 adapted to...
serve as guides for accurately positioning oil receiving means into hermetically sealed relationship means as the said connector 10 over the unconnected ends of the air suction line 13 and the oil suction line 14 as hereinafter described.

An annular sealing ring 47 of rubber or other suitable material is suitably secured or positioned against the front of the said connector 10 rapidly within the forwardly disposed annular lip 23 thereabout.

The oil receiver 19 is preferably formed elbow shaped as best illustrated in Fig. 1 and has the lower bell shaped depending end 48 thereof internally threaded to permit the same to be secured in hermetically sealed relationship to the complementarily threaded neck 45 of the container 20. The throat of the oil receiver 19 is preferably provided with a plurality of external longitudinally disposed circumferentially spaced ribs 50 as indicated in Figs. 1 and 3 to aid in cooling the exterior surface thereof which often becomes heated from hot oil passing therethrough.

The laterally disposed open annular end of the said oil receiver 19 is of such a diameter as will permit the same to register with the sealing ring 47 of the said connector 10 and is preferably provided with an annular groove 51 to assure a hermetically sealed joint between the said oil receiver 19 and the connector 10 when positioned thereagainst.

The said oil receiver 19 is preferably provided with a ridge 52 disposed inwardly of the annularly grooved laterally disposed open end thereof sufficiently close to the said laterally disposed open end of the oil receiver 19 to cause oil drawn by suction from the bore 40 of the said tubular projection 39 which serves as the unconnected end of the oil receiver 19 to spew down the throat of the said connector 18 thereby preventing an accumulation of oil in the end of the oil receiver 19 adjacent to the annular sealing ring 47 of the said connector 10 when the oil removal unit is in use.

The said oil receiver 19 is preferably provided with a hooked shaped strap hanger 53 on the outside of the top thereof and an air valve contactor 54 on the inside of the top thereof both of which are preferably secured to the said oil receiver by such means as the through rivets 55 as best illustrated in Fig. 2. The said hooked shaped strap hanger 53 is so formed as to engage the said oil receiver support 110 vertically disposed on top of the said connector 10 between the spaced vertically disposed tabs 45 of the said support 110 as indicated by the dot and dash lines in Fig. 1 when the oil receiving means is being positioned in operating relationship with the said connector 10. The said oil receiver 19 is accurately guided by the cooperation of the said hooked shaped strap hanger 53 with the said support 110 into hermetically sealed relationship with the connector 10 with the laterally disposed annular open end of the said oil receiving means 19 in sealed engagement against the annular sealing ring 47 of the said connector 10 as indicated by the full lines in Fig. 1 and as shown in detail in Fig. 2, at which time the said air valve contactor 54 of the said oil receiving means 19 has contacted the air valve 34 of the said connector 10 and has opened the same as indicated in Fig. 2.

The said oil receiver 19 is preferably provided with a suitably disposed vacuum relief aperture 56 therethrough which prevents a vacuum from being built up in the oil receiver 19 and its container 20 unless the said vacuum relief aperture is plugged up by the finger or thumb of the operator of the power oil removal unit.

Although the connector 10 has been shown and described with the unconnected end of the air suction line 13 and the unconnected end of the oil suction line 14 horizontally disposed, it is readily observed that, if the connector 10 is mounted or constructed so that the unconnected ends of the air suction line 13 and the oil suction line 14 are otherwise disposed and the unconnected end of the oil suction line 14 is not positioned so that oil spewing therefrom will enter the unconnected end of the oil suction line 13, the device will operate perfectly requiring but a simple change in the shape of the oil receiver 19 to accommodate it to any altered disposition or location of the unconnected ends of the air suction line 13 and the oil suction line 14 or to any rearrangement of the construction of the connector 10 per se. In rearranging the construction of the connector 10 and correspondingly changing the shape of the oil receiver 19 any suitable means may be used for removably fixing the oil receiving means in hermetically sealed relationship to the said connector 10 and over the unconnected ends of the said air suction tube 13 and oil suction tube 14.

The outer periphery of the forwardly disposed annular lip 23 of the said connector 10 is provided with diametrically opposite preferably 30 cylindrical tabs 57 by means of which a cup shaped dust shield 58 provided with suitable diametrically oppositely disposed bayonet slots is removably secured over the front of the said connector 10 as best illustrated in Fig. 8. It will be noted that the shape of said cup shaped dust shield 58 is such as will engage the outwardly disposed annular face of the said annular sealing ring 47 and slightly compress the same whereupon the said sealing ring 47 constantly urges the said dust shield 58 in tensional relationship to the said tabs 57 whereby the said dust shield 58 is prevented from rattling when the connector 10 is vibrated by the engine 12.

Referring now to Figs. 5 to 7 inclusive, the modified construction of means for supporting the oil receiver 19 over the unconnected ends of the oil and air suction tubes 13 and 14 respectively shown therein compensates for the resiliency and any wear of the sealing ring 47 of the connector 10 and thereby assures a perfect hermetic seal at all times between the annularly grooved end 51 of the oil receiver 19 and the annular sealing ring 47 of the said connector 10. The vertically disposed support 110 is identical in every respect to the vertically disposed support 110 shown in Figs. 2 and 3 except that it is not formed integral with the bracket 11 but is secured to the top of the connector 10 by such suitable means as the machine screws 59. The hooked shaped strap hanger 53 is similar to the hook shaped strap hanger 53 illustrated in Fig. 2 except that it is provided with a horizontally disposed portion 51 adapted to slide over the grooved top of the said support 1100 between the spaced vertically disposed tabs 45 thereof. The said support 1100 is provided with a pair of vertically oppositely diametrically disposed slots 60 which accommodate a bow-type spring 70 as best illustrated in Fig. 7. The said bow-type spring 70 is suitably crimped at its extreme ends 62 for retaining the same positioned in the said slot 69 of the support 1100.

When the oil receiver 19 equipped with a hooked shaped strap hanger 53 having a hori-
zontally disposed portion 531 as hereinbefore described is engaged over the said support 1100, the vertically disposed hooked portion 532 of the said hooked shaped strap hanger 530 engages the bow-type spring 91 of the said support 1100 which spring 91 permits the said oil receiver 19 to be suspended from the said support 1100 at a suitable place along the horizontally disposed portion 531 of the said hook shaped strap hanger 530 in accordance with the resiliency and wear of the annular sealing ring 47 thereby causing the annularly grooved face 51 of the said oil receiver 19 to engage the said annular sealing ring 47 of the said connector 10 with substantially equal horizontal pressure therearound. Construction not shown in the fragmentary Figs. 4 to 7 inclusive is preferably similar in every respect to the construction shown in detail in Figs. 2 and 3.

The embodiment of the power oil removal unit disclosed in Figs. 9 to 11 inclusive is similar to the embodiment of the power oil removal unit disclosed in Figs. 1, 2, 3 and 8 except that a sentinel type oil receiver 63 is used instead of the portable oil receiver 19 and that an underground oil container or tank 64 is substituted for the oil container 26. The said sentinel type oil receiver 63 has an air suction hose 65 and an oil suction hose 66 extending thereto from a suitable support 67 which is adapted to engage the connector 10 in such a manner as to apply suction from the air suction tube to the oil suction tube and cause oil to be withdrawn from the oil suction tube into the said sentinel type oil receiver 63.

A suitable valve 68 is provided in the drain line 69 between the said sentinel type oil receiver 63 and the underground spent oil container 64 to permit the sentinel type oil removal unit to operate without the necessity of building up a vacuum in the underground spent oil container 64 when the said valve 68 is closed. By closing off the underground spent oil container 64 from the sentinel type oil receiver 63 when the oil removal unit is in use, a considerable time is saved in applying suction from the oil suction line 13 to the oil suction line 14 and creating a vacuum in the said oil receiver 63 for causing oil to be withdrawn from the crankcase of an internal combustion engine into the said sentinel type oil receiver 63. After the sentinel type oil receiver 63 is filled with spent oil from the crankcase of an internal combustion engine, the said sentinel type oil receiver 63 may be emptied by opening the said valve 68 in the said drain line 69 whereupon oil from the sentinel type oil receiver 63 drains through the said drain line 69 into the underground spent oil container 64.

It is therefore observed that the operation of the sentinel type oil removal unit disclosed in Figs. 9 to 11 inclusive is precisely the same as the operation of the portable type oil removal unit disclosed in Figs. 1, 2, 3 and 8 except that a spent oil container 64 of the sentinel type oil receiver 63 may be temporarily disconnected or sealed off from the said sentinel type oil receiver 63 while the sentinel type oil removal unit is in use whereas no means is provided for disconnecting the container 28 of the portable type oil receiver 19 disclosed in Fig. 1 while the portable oil removal unit is in use.

The connector 10 disclosed in Fig. 9 is similar in every respect to the connector 10 disclosed in Figs. 2, 3 and 8 and hereinbefore described in detail.

The coupler 67 shown in detail in Fig. 9 is preferably a generally annular shaped casting having a flared end of such a diameter and suitably grooved at 70 to register in hermatically sealed relationship with the annular sealing ring 47 of the said connector 10 when positioned thereagainst. The said coupler 67 has concentrically spaced air and oil suction hose sleeves 71 and 72 respectively formed integral therewith but centered on the vertical axis thereof below the center of the said annular flared groove end 70 thereof a sufficient distance to permit the said oil hose sleeve 72 to be in alignment with the unconnected end 53 of the oil suction line 14 of the connector 10 when the said coupler 67 is properly positioned against the said connector 10.

A suitable washer and guide 73 is positioned in the cup 74 integrally formed in the said coupler 67 at one end of the said oil suction hose sleeve 72 for assuring an oil tight connection between the oil suction hose sleeve 72 and the unconnected end of the oil suction line 14 of the connector 10 when the said coupler 67 is positioned in hermatically sealed relationship against the said connector 10.

The oil suction hose 66 is preferably frictionally engaged over the end of the said oil suction hose sleeve 72 opposite the cupped end thereof in telescoping spaced relationship within the said air suction hose sleeve 71 as best illustrated in Fig. 9. The air suction hose 65 which has an inside diameter considerably larger than the outside diameter of the oil suction hose 66 and through which the said oil suction hose 66 is telescoped, is preferably frictionally engaged and secured over the air suction hose sleeve 71 as hereinafter described.

The said air suction hose 65 is preferably clamped to the said air suction hose sleeve 71 by means of tapered semi-crescent shaped wedges 75 over which a complementarily tapered ring 76 is drawn by threading the said tapered ring 76 onto the threaded end 77 of the said coupler 67. Pliable gaskets 78 and 79 provide means for hermatically sealing the joints between the wedges 75, and between the wedges 75 and the tapered ring 76, respectively. A key 80 preferably integral with the said coupler 67 positioned on the vertical axis thereof prevents the said semi-crescent shaped tapered wedges 75 from rotating within the said complementarily tapered ring 76 when the said wedges are being tightened against or loosened from the air suction hose 65 and the air suction hose sleeve 71.

A short length of spring wire hose guard 81 is preferably telescoped over the air suction hose 65 and securely clamped thereto by a suitable clamp 82 positioned around the projecting end of the said air suction hose sleeve 71 as best illustrated in Fig. 9. The said spring wire hose guard 81 prevents the air suction hose 65 from kinking at the end of the coupler 61. A suitable air passage aperture 83 is provided through the air suction hose sleeve 71 as indicated in Fig. 9 to permit air to be drawn from the air suction hose 65 through the air suction line 13 when the air valve 34 is normally closed the unconnected end of the said air suction line 13 at the connector 10 is opened as hereinbefore described.

The said coupler 67 is preferably provided with a hook shaped strap hanger 84 on the outside of the top thereof and an air valve contactor 85 on
the inside of the top thereof both of which are secured to the said coupler 67 by such means as the through rivets 86 as best illustrated in Fig. 9. The said hook shapped strap hanger 64 is so formed as to engage the said oil receiver support 83 through the top thereof by being contacted by the thru the said coupler 67 is being positioned in operating relationship with the connector 10. The said coupler 67 is accurately guided by the cooperation of the said hook shaped strap hanger 64 with the said support 110 into hermetically sealed relationship with the connector 10 with the laterally disposed annular groove open end of the said coupler 67 in sealed engagement with the annular sealing ring 47 of the said connector 10, at which time the said air valve connector 34 of the said coupler 67 has contacted the air valve 68 of the said connector 10 and has opened the same as indicated in Fig. 9.

Although not shown, the said coupler 67 may be provided with a suitably disposed vacuum relief aperture similar to the vacuum relief aperture 56 of the said oil receiver 63 for preventing a vacuum from being built up in the annular type oil receiver 63 unless the said vacuum relief aperture is plugged up by the finger or thumb of the operator of the power oil removal unit.

The annular disk shaped oil receiver support 95 is preferably formed bottle shaped of glass having a threaded upper neck 87 onto which the air suction hose 65 is hermetically connected by a suitably threaded support 89 through which the said oil suction hose 65 centrally depends a short distance into the said oil receiver 63 in telescoping spaced relationship thereto. The said oil receiver 63 is preferably provided with a tapered lower neck 89 which is frictionally sealed within the funnel shaped connection 90 disposed on the top of the drain line 68. A compressible tapered washer 91 assures a hermetic seal between the said tapered lower neck 89 of the said oil receiver 63 and the said funnel shaped drain line connection 90. The said oil receiver 63 is preferably supported on a tubular metal post 92 having a metal base 93 welded thereto, which base is in turn suitably secured to a concrete curb 94. The top of the said tubular metal post 92 is preferably provided with an annular dish shaped oil receiver support 95 onto which the said oil receiver 63 is positioned with a suitable annular compressible dish shaped gasket 96 therebetween.

A suitable ornamental cap 97 preferably having a sign globe 98 thereon and having an annular dome shaped bottom 99 is positioned over the top of the said oil receiver 63 with a compressible ornamental dome shaped gasket 100 therebetween. The said cap 97 is preferably provided with a sleeve 101 at one side thereof through which the air suction hose 65 enters. A short length of spring wire hose guard 102 adapted to protect the air suction hose 65 from kinking at the said sleeve 101 is secured around the said hose 65 and anchored to the said sleeve 101 by such means as an internally circumferentially scored anchor base 103 threaded over the said sleeve 101 of the said ornamental cap 97.

The said ornamental dome shaped bottom 99 of the said ornamental cap 97 is provided with a plurality of circumferentially spaced radially projecting vertically disposed anchor base lugs 104 having a vertically disposed threaded bore in the bottom thereof to accommodate the threaded end of the anchor base rods 108. The said annular disk shaped oil receiver support 95 is provided with a plurality of like circumferentially spaced vertically disposed radially projecting anchor lugs 106 having a vertically disposed threaded bore in the top thereof to accommodate the threaded end of the said anchor lugs 108. The threads at the opposite ends of the said anchor lugs 105 are oppositely pitched and the threads of the vertical bores of the anchor lugs 105 and 106 respectively are oppositely pitched so that when the said anchor lugs 105 are threaded thereinto the said anchor lugs 105 will tensonally secure the said ornamental type oil receiver 63 in assembled relationship on its pedestal 92 with the ornamental cap 97 thereover as best illustrated in Fig. 11.

The tubular metal post 92 of the said ornamental type oil receiver 63 is preferably slotted at 107 through which the operating lever 108 of the valve 68 of the drain line 69 projects. When the said drain valve lever 108 is in the upward position as indicated by the full lines in Fig. 11 the sentinel type oil removal unit is ready to operate without the necessity of placing a vacuum in the underground spent oil container 64. After oil has been removed from the crankcase of an internal combustion engine to the sentinel type oil receiver 63 and the said oil receiver 63 is filled with spent oil, the valve 68 in the drain line 69 between the oil receiver 63 and the underground spent oil container 64 is opened by moving the drain valve lever 108 to the position indicated by the dotted lines in Fig. 11 whereupon the said oil receiver 63 is emptied by gravity into the underground spent oil container 64.

It is readily observed from the foregoing description and the accompanying drawings that when a motor vehicle is equipped with a connector 10 embodying the invention, the motor may remove spent oil from the crankcase of the internal combustion engine of the said motor vehicle when the said engine is running by positioning the portable oil receiver 19 having a spent oil container 20 connected thereto over the unconnected ends of the said air suction line 13 and oil suction line 14 as hereinbefore described, or, the motorist may drive into a gasoline station equipped with a sentinel type oil receiver 63 and have oil removed from the crankcase of his engine while the engine is running by connecting the said sentinel type oil receiver 65 over the unconnected ends of the air suction line 13 and the oil suction line 14 of the motor vehicle, an air suction tube connected to the intake manifold of the said engine of the said vehicle when running.

Although but two embodiments of the invention and one modification thereof have been disclosed and described in the described, it will be understood that various changes including the size, shape, arrangement and detail of the various parts thereof may be made without departing from the spirit of the invention, and it is not my intention to limit the scope of the invention other than by the terms of the appended claims.

I claim:

1. In combination with a motor vehicle, a connector mounted on said motor vehicle, an air suction tube connected to the intake manifold of the engine of the said motor vehicle, an oil
suction tube communicating with the low point of
the crankcase of the said engine, the unconnected ends of the said suction tubes being mounted on the said connector, the said connector being adapted to support and position means for applying suction from the said air suction tube to the said oil suction tube in hermetically sealed relationship over the unconnected ends of said suction tubes whereby oil is removed from the crankcase of the said engine into an oil receiver.

In combination with a motor vehicle, a connector mounted on said motor vehicle, an air suction tube connected to the intake manifold of the engine of the said motor vehicle, an oil suction tube communicating with the low point of the crankcase of the said engine, the unconnected ends of the said suction tubes being mounted on the said connector, a sealing ring on said connector positioned around the unconnected ends of the said suction tubes, oil receiving means, and means for accurately suspending said oil receiving means in hermetically sealed relationship over the unconnected ends of said suction tubes and against said sealing ring on said connector comprising a support having a pair of spaced guides integral therewith on said connector and a hangar secured to said oil receiving means formed to engage said support between said guides.

In combination with a motor vehicle, a connector mounted on said motor vehicle, an air suction tube connected to the intake manifold of the engine of the said motor vehicle, an oil suction tube communicating with the low point of the crankcase of the said engine, the unconnected ends of the said suction tubes being mounted on the said connector, a sealing ring on said connector positioned around the unconnected ends of the said suction tubes, oil receiving means, and means for accurately suspending said oil receiving means in hermetically sealed relationship over the unconnected ends of said suction tubes and against said sealing ring on said connector comprising a support having a pair of spaced guides integral therewith on said connector and a hangar secured to said oil receiving means formed to engage said support between said guides.

In combination with a motor vehicle, a connector mounted on said motor vehicle, an air suction tube connected to the intake manifold of the engine of the said motor vehicle, an oil suction tube communicating with the low point of the crankcase of the said engine, the unconnected ends of the said suction tubes being mounted on the said connector, a sealing ring on said connector positioned around the unconnected ends of the said suction tubes, oil receiving means, and means for accurately suspending said oil receiving means in hermetically sealed relationship over the unconnected ends of said suction tubes and against said sealing ring on said connector comprising a support having a pair of spaced guides integral therewith on said connector and a hangar secured to said oil receiving means formed to engage said support between said guides.
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nector comprising a support having a pair of spaced guides integral therewith on said con-

nector and a hangar secured to said oil receiving

means formed to engage said support between

said guides, the said suspending means being

adapted to compensate for resiliency and wear

of said sealing ring.

10. In combination with a motor vehicle, a

connector mounted on said motor vehicle, an air

suction tube connected to the intake manifold

of the engine of the said motor vehicle, an oil

suction tube communicating with the low point

of the crankcase of the said engine, the uncon-

nected ends of the said suction tubes being

mounted on the said connector, an air valve nor-

mally closing the unconnected end of the said

air suction tube, and an oil receiver adapted to

be removably fixed in hermetically sealed rela-

tionship over the said unconnected ends of the

suction tubes and hold the said air valve open

whereto apply suction from the air suction

tube to the oil suction tube which removes

oil from the crankcase of the said engine into

the said oil receiver.

11. In combination with a motor vehicle, a

connector mounted on said motor vehicle, an air

suction tube connected to the intake manifold

of the engine of the said motor vehicle, an oil

suction tube communicating with the low point

of the crankcase of the said engine, the uncon-

nected ends of the said suction tubes being

mounted on the said connector, an air valve nor-

mally closing the unconnected end of the said

air suction tube, and supporting means fixed with

respect to the said connector from which oil

receiving means is removably suspended and

positioned in hermetically sealed relationship

over the unconnected ends of the said suction

tubes and against said air valve whereby the said

air valve is opened and suction is applied from

the air suction tube to the oil suction tube which

removes oil from the crankcase of the said en-

gine into the said oil receiver.

12. In a power oil removal unit, in combina-

tion, a connector mounted on a motor vehicle,

an air suction tube connected to the intake mani-

fold of the engine of the said motor vehicle, an

oil suction tube communicating with the low point

of the crankcase of the said engine, the uncon-

nected ends of the said suction tubes being

mounted on the said connector, and an oil re-

ceiver adapted to be removably fixed in her-

metically sealed relationship over the said un-

connected ends of the said suction tubes whereby

to apply suction from the air suction tube to the

oil suction tube which removes oil from the

crankcase of the said engine into the said oil

receiver, the said oil receiver having a vacuum

relief aperture therethrough which prevents a

vacuum from being built up in said oil receiver

until the said aperture is plugged by the operator

of the said oil removal unit.

13. In a power oil removal unit, in combina-

tion, a connector mounted on a motor vehicle, an

air suction tube connected to the intake mani-

fold of the engine of the said motor vehicle, an

oil suction tube communicating with the low point

of the crankcase of the said engine, the uncon-

nected ends of the said suction tubes being

mounted on the said connector, a sealing ring

on said connector positioned around the uncon-

nected ends of the said suction tubes, and oil re-

ceiving means including means for accurately

suspending said oil receiving means in hermeti-

cally sealed relationship over the unconnected

ends of said suction tubes and against said seal-

ing ring on said connector comprising a support

having a pair of spaced guides integral therewith

on said connector and a hangar secured to said oil receiving means formed to engage said support

between said guides, the said oil receiver

having a vacuum relief aperture therethrough

which prevents a vacuum from being built up in

said oil receiver until the said aperture is plugged

by the operator of the said oil removal unit.

14. In a power oil removal unit, in combina-

tion, a connector mounted on a motor vehicle, an

air suction tube connected to the intake manifold of

the engine of the said motor vehicle, an oil suc-

tion tube communicating with the low point of

the crankcase of the said engine, the uncon-

nected ends of the said suction tubes being

mounted on the said connector, an air valve nor-

mally closing the unconnected end of the said

air suction tube, and an oil receiver adapted to

be removably fixed in hermetically sealed rela-

tionship over the said unconnected ends of the

suction tubes and hold the said air valve open

whereto apply suction from the air suction

tube to the oil suction tube which removes

oil from the crankcase of the said engine into

the said oil receiver, the said oil receiver having

a vacuum relief aperture therethrough which pre-

vents a vacuum from being built up in said oil

receiver until the said aperture is plugged by

the operator of the said oil removal unit.

15. In combination with a motor vehicle, a

connector mounted on said motor vehicle, an air

suction tube connected to the intake manifold

of the engine of the said motor vehicle, an oil

suction tube communicating with the low point

of the crankcase of the said engine, the uncon-

nected ends of the said suction tubes being

mounted on the said connector, a support for

coupling means on said connector, a sealing ring

on said connector, an oil receiver, an air suction

hose and an oil suction hose hermetically con-

nected at one end to the upper end of said oil

receiver, and a coupling means on the other end

of said air and oil suction hoses adapted to be

suspended from said connector and couple the

said air and oil suction hoses to said connector

in hermetically sealed relationship against said

sealing ring and the unconnected end of said

oil suction tube whereby suction is applied from

the air suction tube to the oil suction tube where-

upon oil is removed from the crankcase of the

said engine into the said oil receiver.

16. In combination with a motor vehicle, a

connector mounted on said motor vehicle, an air

suction tube connected to the intake manifold of

the engine of the said motor vehicle, an oil suc-

tion tube communicating with the low point of

the crankcase of the said engine, the uncon-

nected ends of the said suction tubes being

mounted on the said connector, an air valve nor-

mally closing the unconnected end of said air suction tube, a support for coupling means on said connector, a sealing ring on said connector, an oil receiver, an air suction hose and an oil suction hose hermetically connected at one end to the upper end of said oil receiver, and means including means for accurately suspending said oil receiving means in hermetically sealed relationship over the unconnected

ends of said suction tubes and against said sealing ring on said connector comprising a support

having a pair of spaced guides integral therewith on said connector and a hangar secured to said oil receiving means formed to engage said support between said guides, the said oil receiver having a vacuum relief aperture therethrough which prevents a vacuum from being built up in said oil receiver until the said aperture is plugged by the operator of the said oil removal unit.
upon oil is removed from the crankcase of the said engine into the said oil receiver.

17. In combination with a motor vehicle, a connector mounted on said motor vehicle, an air
suction tube connected to the intake manifold of
the engine of the said motor vehicle, an oil suc-
tion tube communicating with the low point of
the crankcase of the said engine, the unconnected
ends of the said suction tubes being mounted on
the said connector, a support for coupling
means on said connector, a sealing ring on said
connector, an oil receiver, an air suction hose
connected at one end to the upper end of said
oil receiver, an oil suction hose having its outside
diameter smaller than the inside diameter of
said air suction hose telescoped therein and ex-
tending into said oil receiver, and a coupling
means on the free ends of said air and oil suc-
tion hoses adapted to be suspended from said
connector and simultaneously open said air
valve and couple the said air and oil suction
hoses to said connector in hermetically sealed
relationship against said sealing ring and the
unconnected end of said oil suction tube
whereby suction is applied from the air suction
tube to the oil suction tube whereupon oil is
removed from the crankcase of the said engine
into the said oil receiver.

18. A power oil removal unit, in combination,
a connector mounted on a motor vehicle, an air
suction tube connected to the intake manifold of
the engine of the said motor vehicle, an oil suc-
tion tube communicating with the low point of
the crankcase of the said engine, the unconnected
ends of the said suction tubes being mounted on
the said connector, an air valve normally clos-
ing the unconnected end of said air suction tube,
a support for coupling means on said connector,
a sealing ring on said connector, an oil receiver,
an air suction hose connected at one end to the
upper end of said oil receiver, an oil suction hose
having its outside diameter smaller than the inside
diameter of said air suction hose telescoped
therein and extending into said oil receiver, and
a coupling means on the free ends of said air and
oil suction hoses adapted to be suspended from said
component and simultaneously open said air
valve and couple the said air and oil suction
hoses to said connector in hermetically sealed
relationship against said sealing ring and the
unconnected end of said oil suction tube
whereby suction is applied from the air suction
tube to the oil suction tube whereupon oil is
removed from the crankcase of the said engine
into the said oil receiver.

19. A power oil removal unit, in combination,
a connector mounted on a motor vehicle, an
air suction tube connected to the intake mani-
fold of the engine of the said motor vehicle, an
oil suction tube communicating with the low
point of the crankcase of the said engine, the
unconnected ends of the said suction tubes being
mounted on the said connector, an air valve nor-
ma{}ly closing the unconnected end of said air
suction tube, a support for coupling means on said
component, a sealing ring on said connector,
an oil receiver, an air suction hose connected
at one end to the upper end of said oil
receiver, an oil suction hose having its outside
diameter smaller than the inside diameter of
said air suction hose telescoped therein and ex-
tending into said oil receiver, and a coupling
means on the free ends of said air and oil suc-
tion hoses adapted to be suspended from said
connector and simultaneously open said air
valve and couple the said air and oil suction
hoses to said connector in hermetically sealed
relationship against said sealing ring and the
unconnected end of the said oil suction tube
whereby suction is applied from the air suction
tube to the oil suction tube whereupon oil is
removed from the crankcase of the said engine
into the said oil receiver, the said coupling means
and support therefor being adapted to compen-
sate for resiliency and wear of the said sealing
ring.

EDWARD L. WOOD.