Feb. 8, 1949. H. A. R. PETERMAN 2,461,174

AUTO VACUUM CLEANER

Filed April 15, 1946 3 Sheets-Sheet 1

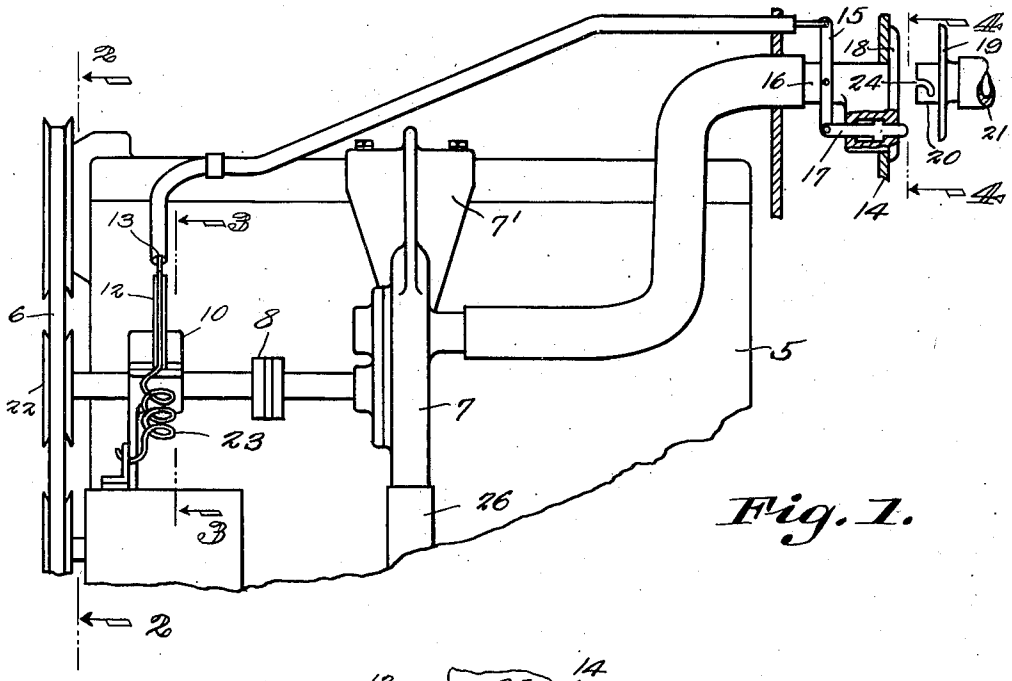


Fig. 1.

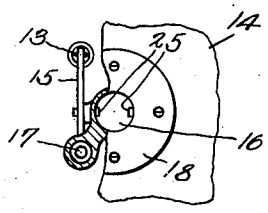


Fig. 3.

Fig. 4.

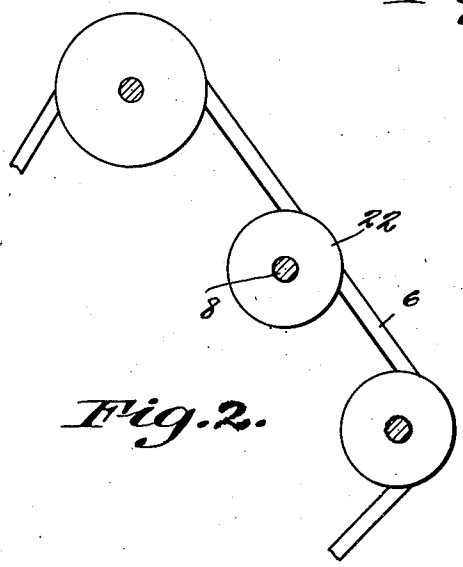
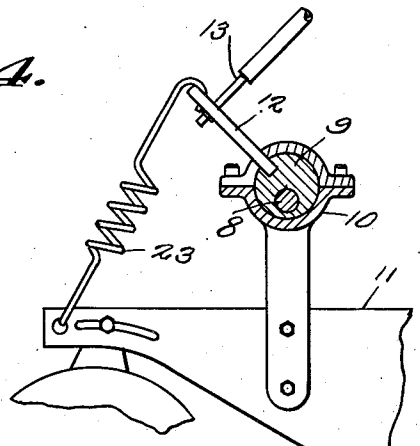


Fig. 2.



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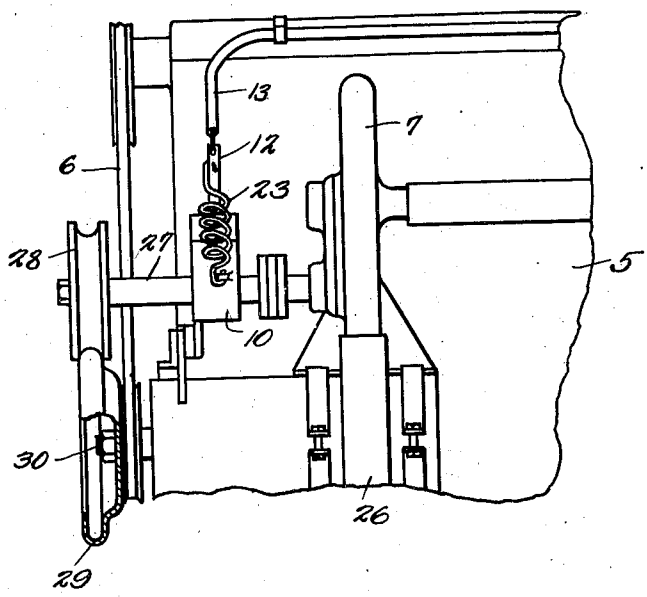


Fig. 5.

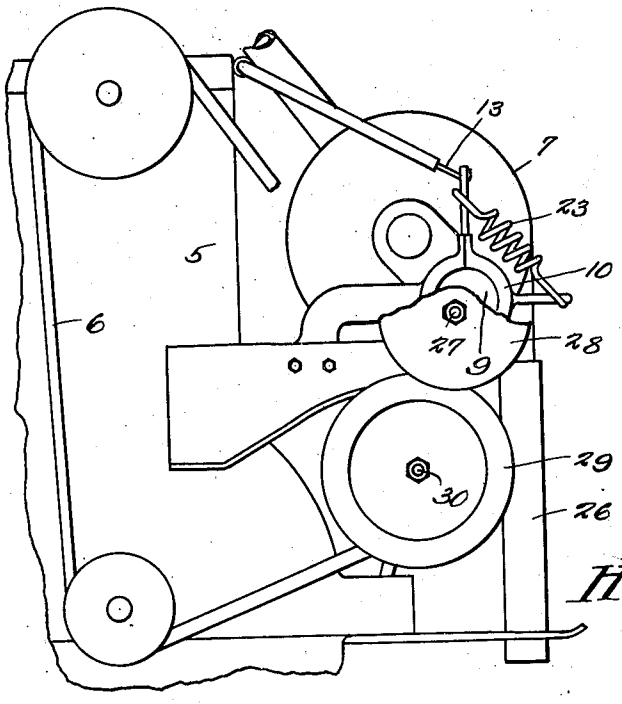


Fig. 6.

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AUTO VACUUM CLEANER

Filed April 15, 1946 3 Sheets-Sheet 3

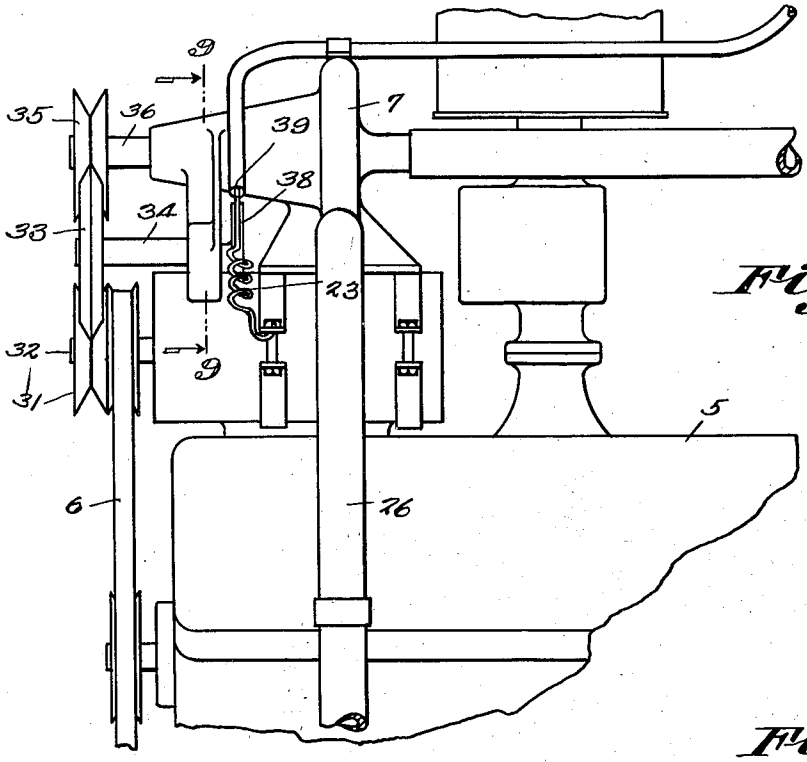
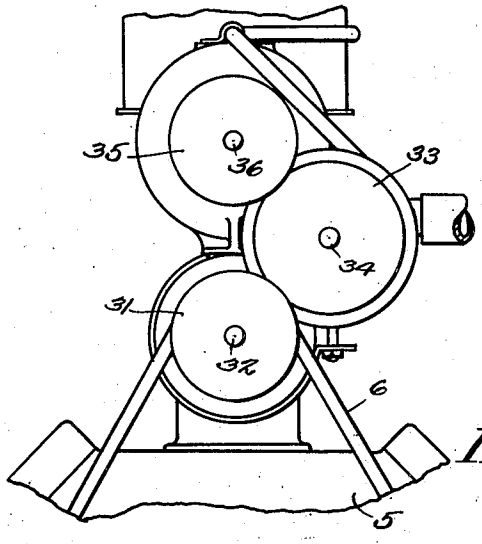


Fig. 7.

Fig. 9.



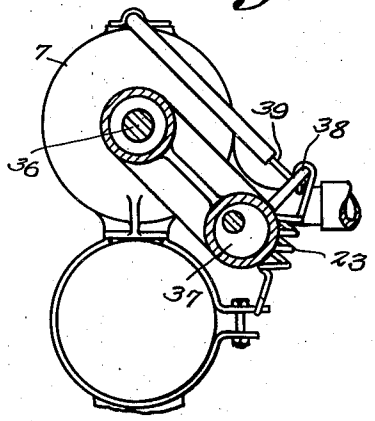


Fig. 8.

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2,461,174

UNITED STATES PATENT OFFICE

2,461,174

AUTO VACUUM CLEANER

Harry A. R. Peterman, Chicago, Ill.

Application April 15, 1946, Serial No. 662,336

3 Claims. (Cl. 230—14)

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This invention relates to an attachment for motor vehicles, wherein the usual internal combustion engine of the motor vehicle, may be utilized for operating means for creating a suction through a nozzle and hose, which may be employed in cleaning the upholstery of the motor vehicle equipped with the attachment.

An important object of the invention is to provide an attachment of this character which may be readily and easily installed, eliminating the necessity of making alterations in the usual engine construction, to mount the device.

Another object of the invention is to provide means controlled by the nozzle carrying hose of the attachment, for moving the device into and cut of operation.

With the foregoing and other objects in view, which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein described, may be made within the scope of what is claimed, without departing from the spirit of the invention.

Referring to the drawing:

Figure 1 is an elevational view illustrating an internal combustion engine of a motor vehicle, equipped with an attachment constructed in accordance with the invention.

Figure 2 is a sectional view taken on line 2—2 of Figure 1 of the drawings, illustrating the power pulley of the attachment as engaging the fan belt of the engine.

Figure 3 is a sectional view taken on line 3—3 of Figure 1.

Figure 4 is a sectional view taken on line 4—4 of Figure 1.

Figure 5 is an elevational view illustrating a modified form of power take-off.

Figure 6 is an end elevational view of the structure illustrated by Figure 5.

Figure 7 is a side elevational view of an internal combustion engine illustrating a further modified form of power take-off.

Figure 8 is an end elevational view of the structure shown by Figure 7.

Figure 9 is a sectional view taken on the line 9—9 of Figure 7.

Referring to the drawing in detail, the reference character 5 indicates an engine block, and the reference character 6 indicates the usual fan belt of the internal combustion engine.

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The attachment forming the subject matter of the present invention, includes a suction fan mounted within a housing 7, which is secured to the engine block by means of a bracket 7'. The fan is operated by means of a flexible shaft 8 which is eccentrically mounted in the bearing 9, supported within the bracket 10 that is secured to the fan belt adjusting arm 11. The bracket 10 is formed with an opening through which the arm 12 extends, the arm 12 being connected with the flexible shaft 13 that extends to a point adjacent to the instrument board 14, where it connects with the upper end of the lever 15 which is pivotally mounted on the pipe 16 which extends through an opening in the instrument board. Connected with the lower end of the lever 15 is a push rod 17 that extends through the flange 18 formed on the upper end of the pipe 16, the push rod lying in the path of travel of the flange 19 which is carried by the union 20 that connects with the intake hose 21 that carries the nozzle, not shown, on the free end thereof. Thus it will be seen that when the union 20 is positioned in the upper end of the pipe 16, the flange 19 contacting the push rod 17 will operate the flexible shaft 13 to move the bearing 9 and the shaft 8 operating therein. The shaft 8 carries the power pulley 22 on one end thereof, which power pulley is adapted to move into engagement with the fan belt, when the flexible shaft is operated, as described.

The coil spring 23 operates to return the shaft 8 and pulley 22 to their normal positions, when the union 20 is disconnected from the pipe 16. As shown, the union 20 is formed with curved slots 24, adapted to engage the lugs 25 extending inwardly from the wall of the pipe 16, thereby to draw the union into close engagement with the pipe 16, providing an air-tight connection therebetween.

The exhaust pipe of the housing 7, is indicated by the reference character 26, through which the dust-ladened air passes and is discharged on the ground surface.

In the form of the invention as shown by Figures 5 and 6 of the drawings, the flexible shaft 27 is provided with a pulley 28 that frictionally engages the pulley 29 secured to the generator shaft 30. It may be found desirable to resort to this type of power take-off when the attachment is used with certain types of motor vehicles.

A still further form of power take-off is shown by sheet 3 of the drawings, in which an auxiliary pulley 31 is mounted on the generator shaft

22, the pulley 31 engaging the pulley 33 mounted on the shaft 34, the pulley 33 also engaging the pulley 35 mounted on the water pump shaft 36.

The shaft 34 is eccentrically mounted in the bearing 37 so that when the arm 38 is moved by means of the flexible shaft 39 in a manner as previously described, the pulley 33 will be moved into and out of operation.

From the foregoing it will be seen that when it is desired to use the cleaning attachment, it is only necessary to insert the union 20 in the open end of the pipe 16. The flange 19, engaging the push rod 17 will operate to throw the fan into operation, creating a suction through the intake hose 21 to remove foreign matter on the surface on which the nozzle carried at the end of the intake hose 21 is positioned.

Having thus described the invention, what is claimed is:

1. The combination with a motor vehicle internal combustion engine and the fan belt thereof, of a vacuum cleaning device adapted to be attached to the engine, a suction fan including a housing supported by the engine, a flexible power shaft extending into the housing and on which the suction fan is mounted, a bearing in which the flexible power shaft is eccentrically mounted, a pulley mounted on one end of the shaft, an air intake hose connected with the housing, and having a pipe fitting at one end, a second air intake hose removably connected with the pipe fitting, and means operated by the second-mentioned intake hose when positioning the second-mentioned intake hose, for moving the pulley into engagement with the fan belt and rotating the power shaft and suction fan connected therewith.

2. The combination with a motor vehicle internal combustion engine and the belt of the fan driving mechanism thereof, of a vacuum cleaning device, comprising a suction fan and housing adapted to be attached to the engine, an air intake hose connected with the housing, a flexible power shaft extending into the housing and on which the suction fan is secured, a pulley on one

end of the shaft, a bearing in which the shaft is eccentrically mounted, a flexible operating shaft, an arm connected with said bearing and to which one end of the operating shaft is connected, a lever connected with the opposite end of the flexible operating shaft, a push rod connected with the lever, a removable air intake hose including a pipe section having a flange, said flange engaging the push rod when the removable intake hose is connected with the first-mentioned air intake hose, rotating the bearing whereby the power shaft is adjusted, moving the pulley into engagement with the belt of the fan driving mechanism operating the suction fan.

3. The combination with a motor vehicle internal combustion engine and the cooling fan and belt of the driving mechanism thereof, of a vacuum cleaning device embodying a fan housing secured to the engine, an adjustable power shaft, a bearing in which the power shaft is eccentrically mounted, a pulley mounted on one end thereof, a suction fan mounted on the opposite end of the power shaft and operated within the housing, a sectional intake hose communicating with the housing, a coupling for coupling the adjacent ends of the intake hose together, and means operated by the coupling means of the intake hose for moving the adjustable power shaft and pulley into operative contact with the belt of the cooling fan driving mechanism.

HARRY A. R. PETERMAN.

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