June 11, 1935. L. T. FARLEY 2,004,859

AUTOMOBILE SURFACE SANDER

Filed May 4, 1934 4 Sheets-Sheet 1

Fig. I.

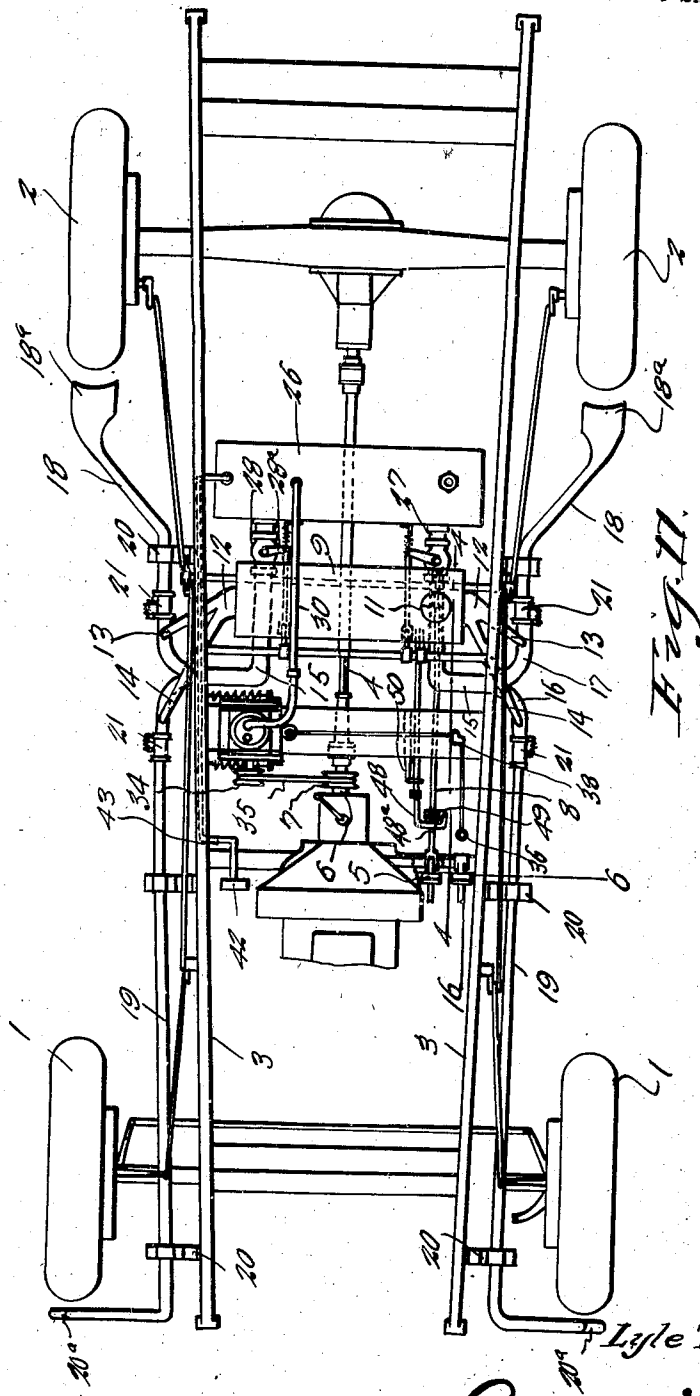


Fig. II.



Inventor

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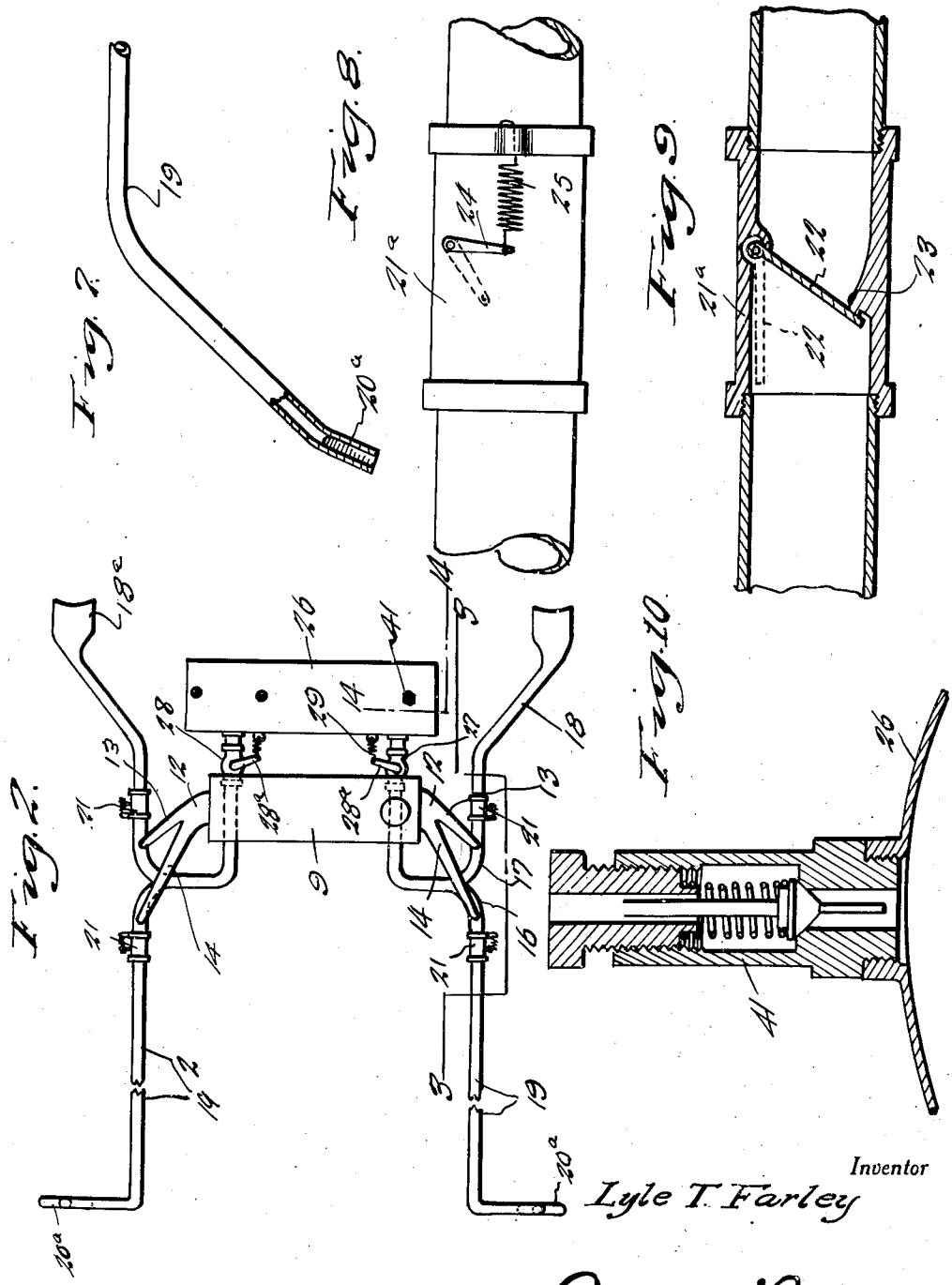
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AUTOMOBILE SURFACE SANDER

Filed May 4, 1934 4 Sheets-Sheet 2



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AUTOMOBILE SURFACE SANDER

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Fig. 5.

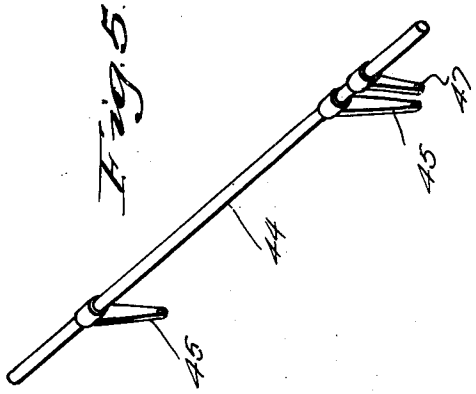


Fig. 3.

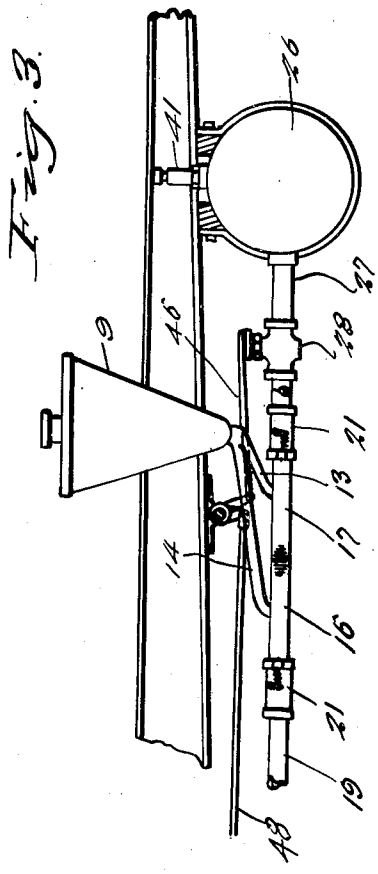


Fig. 4.

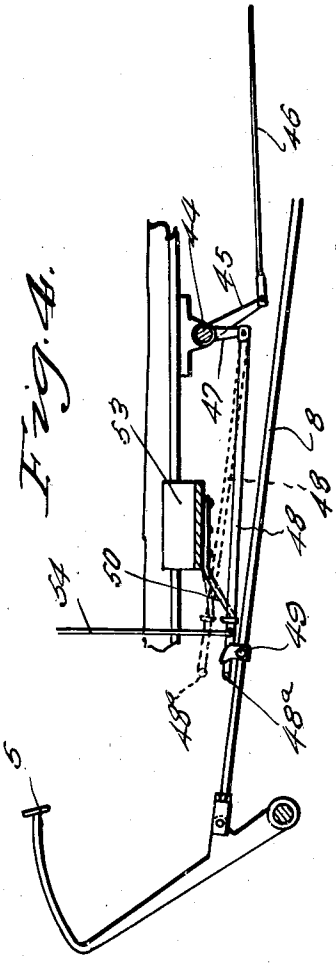
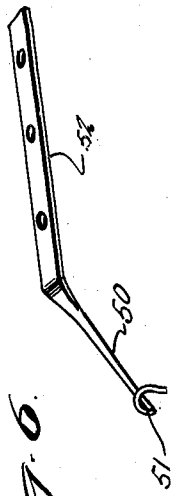


Fig. 6.



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AUTOMOBILE SURFACE SANDER

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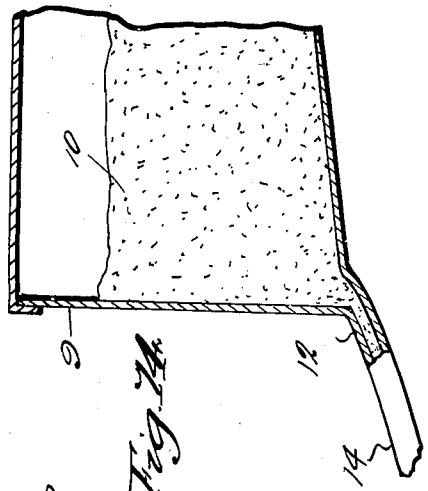


Fig. 14.

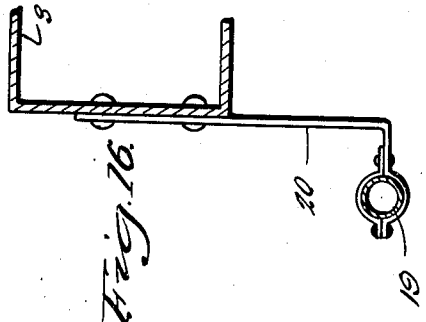


Fig. 16.

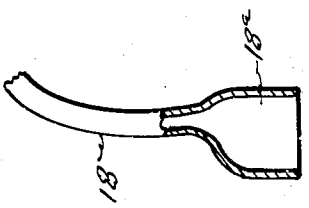


Fig. 15.

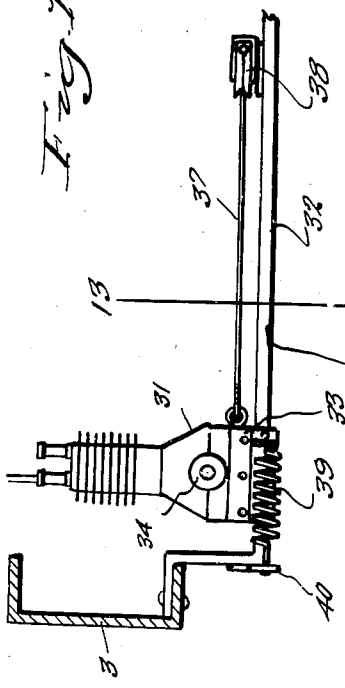


Fig. 12.

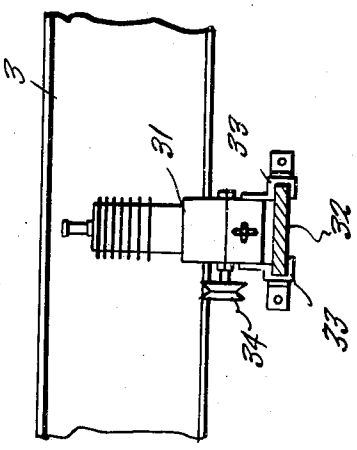


Fig. 13.

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UNITED STATES PATENT OFFICE

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AUTOMOBILE SURFACE SANDER

Lyle T. Farley, Norwich, N. Y.

Application May 4, 1934, Serial No. 723,960

4 Claims. (Cl. 291—15)

This invention has as its object to provide an improved equipment for automobiles of the type including generally a container for sand or other abrasive material together with means for supplying air under pressure to the container to effect a discharge of the sand therefrom, and means for delivering the sand to the surface or road in a manner to enable the wheels of the automobile or similar motor vehicle to obtain a positive grip upon a slippery surface and thereby prevent skidding and at the same time insure a positive traction action between the wheels and the road surface.

The invention together with its objects and advantages will be best understood from a study of the following description taken in connection with the accompanying drawings wherein:

Figure 1 is a top plan view illustrating the application of the invention, certain parts being omitted.

Figure 2 is a plan view of the equipment.

Figure 3 is a sectional view taken substantially on the line 3—3 of Figure 2.

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

Figure 5 is a perspective view of a rock shaft.

Figure 6 is a perspective view of a combined spring and guide member.

Figure 7 is a perspective view of a nozzle, certain parts being broken away and shown in section.

Figure 8 is an elevational view of a valve equipped portion of a conduit.

Figure 9 is a sectional view through the valve equipped portion of the conduit.

Figure 10 is a sectional view through the release valve for the air crank.

Figure 11 is a perspective view of an operating rod.

Figure 12 is an enlarged view partly in section and partly in elevation showing the mounting for an air compressor.

Figure 13 is a sectional view taken substantially on the line 13—13 of Figure 12.

Figure 14 is an enlarged fragmentary sectional view through the sand container.

Figure 15 is a view of a discharge nozzle, certain parts being broken away and shown in section, and

Figure 16 is an enlarged sectional view taken substantially on the line 16—16 of Figure 1.

Referring to the drawings by reference numerals it will be seen that the chassis of the automobile illustrated in Figure 1 is typical, and that the front wheels of the automobile are indicated by the reference numeral 1 while the rear wheels are indicated by the reference numerals 2. The chassis or frame bars are indicated by the reference numerals 3 while the reference numeral 4 indicates the propeller shaft and the reference numeral 5 the brake pedal. The transmission shaft connected with the propeller shaft 4 is indicated by the reference numeral 6, and in the present instance, and for a purpose hereinafter made manifest the shaft 6 is provided with a pulley 7. The rod connection between the brake pedal 5 and the brake shaft is indicated by the reference numeral 8.

In accordance with the present invention there is suitably mounted between the chassis bars 3 a container 9 adapted to contain sand or other suitable abrasive material 10. The container 9 is provided with a suitable filling cap 11, and at opposite ends thereof with outlets 12 having branches 13, 14. Conduits for the sand are indicated by the reference numerals 15, and each conduit is provided with a forwardly extending branch 16 and a rearwardly extending branch 17. Connected with the ends of the rearwardly extending branches 17 are nozzles 18 having flared mouth portions 18a disposed in proximity to the rear wheels 2. The forwardly extending branches 16 are connected with nozzles 19 that are supported at spaced points by suitable brackets 20 which are in turn secured to the frame bars 3. At the ends thereof the nozzles 19 are disposed laterally and are curved downwardly providing in advance of the wheels 1 discharge heads or mouths 20a. As clearly shown in Figure 1 the branches 13 of the outlets 12 are connected with the conduit branches 17 while the outlet branches 14 are connected with the conduit branches 16. At the connections between the branches 17 and nozzles 18, and also at the connections between the branches 16 and the nozzles 19 are located valves 21, and each of these valves is shown in Figures 8 and 9 and includes a casing 21a that connects a conduit branch with its nozzle, and pivotally mounted within the casing 21a is a flap valve 22 which in closed position engages a stop 23. Externally of the casing 21 the valve 22 is provided with a crank 24 to which is connected one end of a spring 25 that is suitably anchored at its opposite end to the casing as suggested in Figure 8. Under action of spring 25 the valve 22 is normally retained in closed position, that is the full line position shown in Figure 9. To effect a positive discharge of the sand from the container 9 there is provided a suitably mounted air tank 26 that has outlets 27 connected with

the conduits 15, and at the connections between the outlets 27 and the conduits 15 are control valves 28. For normally retaining the control valves 28 in closed position the cranks 28a thereof are connected with one end of springs 29 anchored to one side of the tank 26 as clearly shown in Figures 1 and 2.

The tank 26 is supplied with air through a conduit connection 30 between the tank 26 and an air compressor 31.

The compressor 31 is mounted to slide on a transverse support 32, and at the base thereof the compressor 31 is provided with channel members 33 that engage the side edges of the member 32 for guiding the compressor 31 in its sliding movement and to retain the compressor in proper engagement with the support 32.

The shaft of the compressor 31 is provided with a pulley 34 and the compressor is adapted to be driven from the motor shaft 6 through the medium of a belt 35 trained over the pulleys 7 and 34 as shown in Figure 1.

Any suitable dash control means 36 may be employed for shifting the compressor 31 along its support 32, and in the present instance such control means 36 is connected with the compressor 31 through the medium of a cable 37, an intermediate portion of which is trained over a suitably mounted pulley 38. The compressor 31 is normally retained at one end of its support 32 through the medium of coil springs 39 anchored at one end to brackets 40 and connected at an opposite end with the members 33 as suggested in Figure 12. Obviously when the compressor 31 is in the position shown in Figures 1 and 12 drive may be transmitted from the shaft 6 through the belt and pulley means to the compressor for operating the latter. When it is desired to interrupt this drive the operator properly manipulates the control 36 in order to exert a pull on the cable 37 against the action of springs 39 to cause the compressor 31 to move inwardly toward the transverse center of its support 32. This inward movement of the compressor will cause slack to develop in the belt 35 sufficient to interrupt the drive between the shaft 6 and the compressor.

The air tank 26 is provided with a suitable relief valve clearly shown in Figure 10 as indicated by the reference numeral 41. The equipment also includes as a part thereof a suitable air gauge 42 that may be conveniently mounted on the instrument board, and this air gauge is connected with the tank 26 through the medium of a conduit 43.

For opening the valve 28 to permit a discharge of sand through the nozzles 18 and 19, incidental to an application of the brake the following mechanism is provided. A transversely mounted rock shaft 44 is provided with arms 45 that are connected through the medium of links 46 with the cranks of the valves 28. The shaft 44 is also provided with a crank arm 47 and pivotally connected to the crank arm 47 is one end of a control rod 48. At its free end the rod 48 is formed as at 48a and adapted to engage a block 49 secured at any desired position on the aforementioned pedal rod 8. The end 48a of the rod 48 is normally and releasably retained in the path of movement of the block 49 through the medium of a spring member 50 having a free end shaped as at 51 to straddle the rod 48. The spring member 50 is formed integral with an attaching strap or plate 52 that is suitably secured to a bracket 53 mounted on a fixed part of the automobile.

From the above it will be apparent that when the pedal 5 is depressed for applying the brake, block 49 will engage the end 48a of rod 48 causing a pull on the rod. This will result in a rocking of the shaft 44 in a clockwise direction and consequently a movement of the valves 28 to an open position. With valves 28 open the air under pressure from the tank 26 will discharge through the conduits 15 in a manner to create a suction across the ends of the outlet branches 13 and 14. This suction will be sufficient to draw the sand from the container 9 in a manner to effect a positive and efficient discharge of the sand through the nozzles 18 and 19 on to the road surface and in the region of the wheels 1 and 2 of the automobile and in advance of the wheel to thereby prevent skidding and insure a tractive action between the wheels and the surface of the road.

In this connection it will be apparent that the force of the air and sand against the valves 22 will be sufficient to cause the valves to swing upwardly to the dotted line position shown in Figure 9 so as not to interfere with the passage of the sand through the conduits and discharge nozzles.

When it is desired to operate the brake pedal 5 without disturbing the position of the valves 28 the operator by pulling up on the hand rod 54 that is connected at its lower end with the rod 48 will draw the rod 48 upwardly to the dotted line position shown in Figure 4 and thereby place the end 48a of the rod out of the path of movement of the block 49. The spring 50 will of course yield to the pull exerted on the rod 54 to permit the rod 48 to move from the full line to the dotted line position shown in Figure 4. Upon release of the rod 54 the rod 48 under action of spring 50 will return to its normal or full line position shown in Figure 4.

Having thus described my invention, what I claim as new is:

1. A sanding unit attachment for disposition on a motor vehicle, said attachment comprising a sand container, conduit pipes leading therefrom, valves operable to control the discharge through said conduits, and means for operating the valves from the brake pedal of the vehicle, an air tank in communication with the sand container, an air compressor in communication with the air tank, a support for the air compressor extending transversely of the vehicle and along which the air compressor is movable, means for driving the compressor from the motor shaft of the vehicle including belt and pulley drive means, and means for moving the compressor along its support to develop or take up slack in the drive belt to thereby control the driving connection between the motor shaft and the compressor.

2. A sanding unit attachment for disposition on a motor vehicle, said attachment comprising in combination a sanding apparatus, an air compressor connected therewith, a fixed support for the compressor and along which the same is adapted to travel, an operating connection between the air compressor and the prime mover of the motor vehicle including a belt and pulley drive means, and means for moving the air compressor along its support in a manner to control the drive connection between the compressor and the prime mover by controlling the slack in the belt of said belt and pulley drive connection.

3. In an automobile, the combination of a prime mover, a compressor, supporting means for the compressor and along which the compressor is

movable transversely of the automobile, belt and pulley means operatively connecting the prime mover with the compressor, and means for shifting the compressor along its support relative to the prime mover for taking up or increasing slack in the belt of said drive means and thereby control the driving connection between said prime mover and the compressor.

4. In an automobile, the combination with the prime mover of the automobile, of a support extending transversely of the automobile, a member adapted to be driven from the prime mover slidably mounted on the support, a drive connection between the prime mover and said member, and means for moving said member along its support for placing said member through said driving connection, into and out of driven engagement with the prime mover.

LYLE T. FARLEY.