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2,474,291

ANTISKID DEVICE

Filed April 9, 1947

2 Sheets-Sheet 1

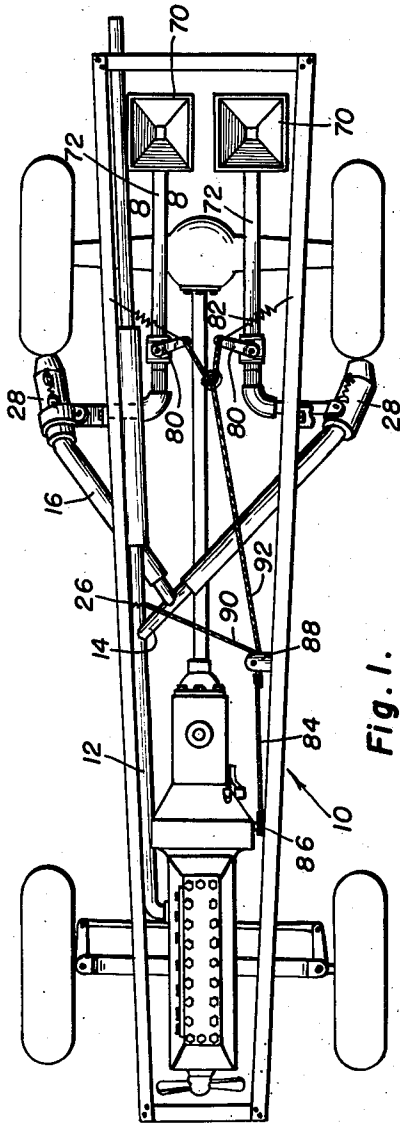


Fig. 1.

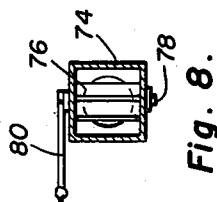


Fig. 8.

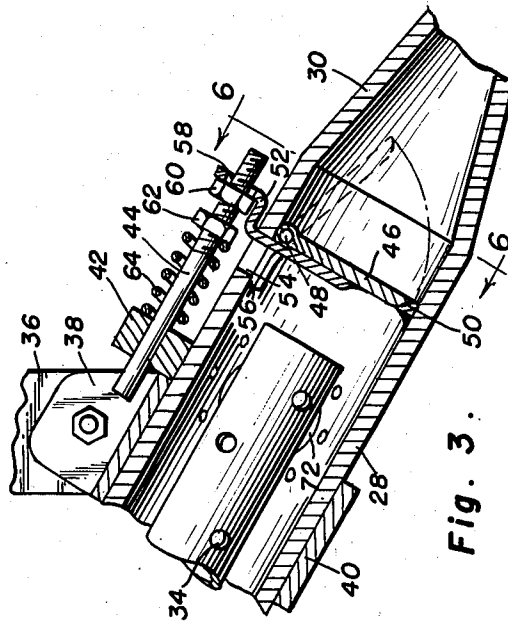


Fig. 3.

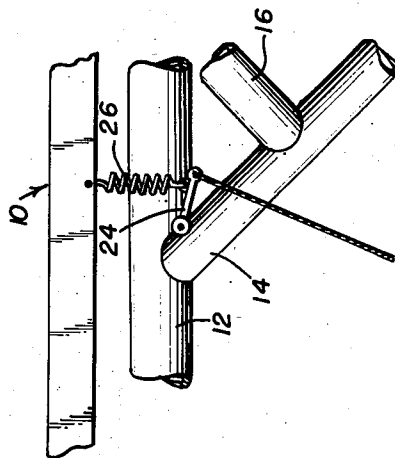


Fig. 2.

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2 Sheets-Sheet 2

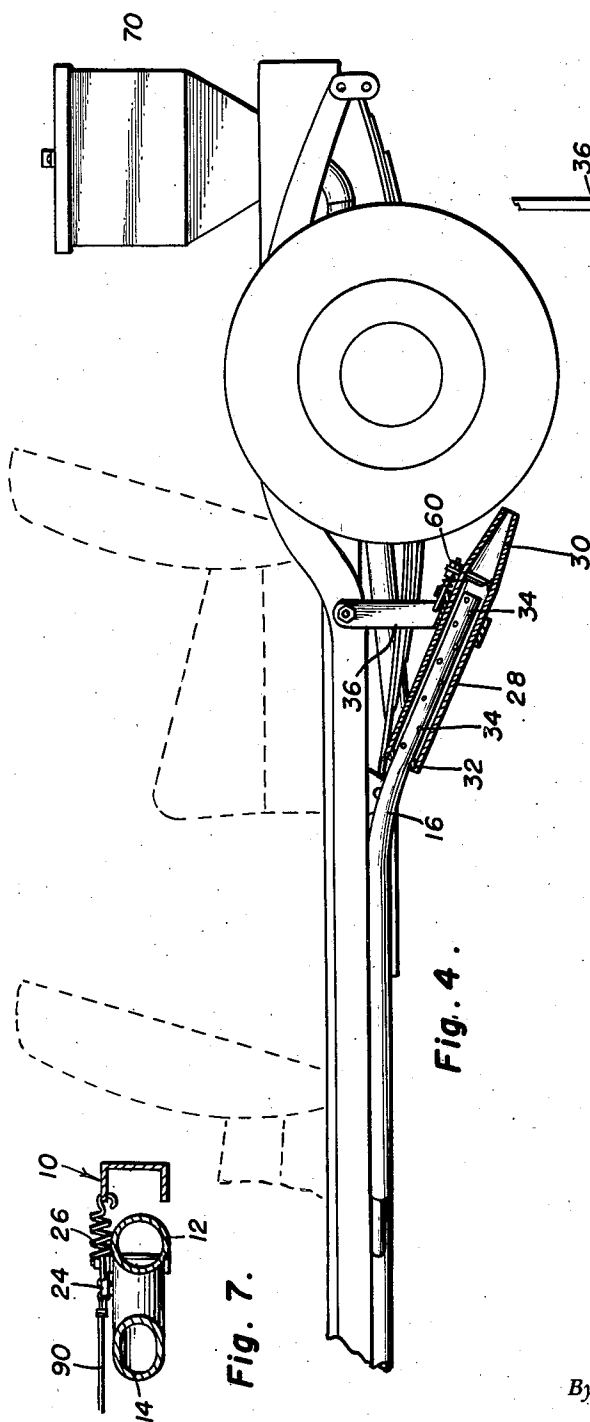


Fig. 4.

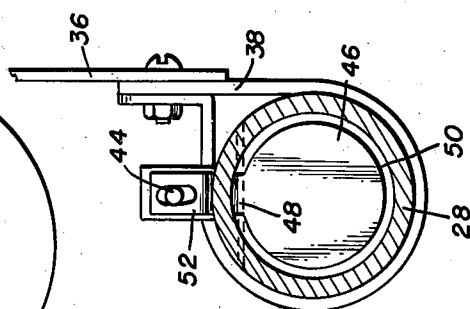


Fig. 6.

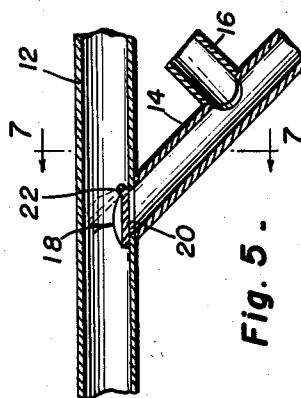


Fig. 5.

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## UNITED STATES PATENT OFFICE

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## ANTISKID DEVICE

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3 Claims. (Cl. 291-16)

1

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This invention appertains to novel devices for preventing skidding in inclement weather.

An object of this invention is to provide an improved means for controlling the admission of a predetermined quantity of abrasive material in relation to the admission of a predetermined quantity of exhaust gas or gases.

Another object of this invention is to provide an improved exhaust pressure responsive valve means, adjustable in nature, for preventing the inadvertent loss of adjuvant or abrasive material.

A further object of this invention is to provide means for resiliently biasing said last mentioned valve means.

A still further object of this invention is to provide means for selectively adjusting said resiliently biasing means.

Another object of this invention is to provide common control means for actuating certain selective valves at predetermined intervals and at the prerogative of a vehicle operator.

Another object of the present invention is to provide resilient return means for each of said valve means actuated by said common control means.

Other objects and features of novelty shall become apparent to those skilled in the art, in following the description of the preferred embodiment of the present invention, illustrated in the accompanying drawings, wherein:

Figure 1 is a plan view of the preferred form of the present invention showing the same illustrated in a conventional vehicle;

Figure 2 is a fragmentary elevational view of the conduit means joining the conventional exhaust pipe of a vehicle;

Figure 3 is a sectional view taken longitudinally of the improved pressure responsive valve means;

Figure 4 is a fragmentary elevational view showing the arrangement of abrasive material retaining means and showing the relative position of the pressure responsive valve means;

Figure 5 is a longitudinal sectional view of the detail in construction disclosed in Figure 2;

Figure 6 is a transverse sectional view of the detail in construction shown in Figure 3 and taken substantially on the line 6-6 thereof and in the direction of the arrows;

Figure 7 is a transverse sectional view of the detail of construction shown in Figure 5 and taken substantially on the line 7-7 thereof and in the direction of the arrows, and;

Figure 8 is an enlarged detail of construction taken substantially on the line 8-8 of Figure 1 and in the direction of the arrows.

Referring now in detail to the illustrated preferred embodiment of the present invention, like reference characters are used throughout to indicate similar elements.

This invention has been developed to provide a device for impeding, if not preventing, danger of skidding and turning in inclement weather. Further, this invention might be utilized for the purpose of removing vehicles from stuck or otherwise immovable positions through the medium of spraying a predetermined quantity of abrasive material adjacent the back wheels thereof. It is contemplated by the present invention to not only eject abrasive material adjacent the rear wheels of a vehicle but also control the said ejection in accordance with the pressure of the exhaust common to all internal combustion engine operated vehicles. It is also within the purview of the present invention to regulate the quantity of exhaust and also to regulate the pressure of exhaust utilized in ejecting the said abrasive material. For this purpose, a common control means has been provided for regulating (opening and closing) certain predetermined valves utilized in the system.

A vehicle chassis of a conventional nature is disclosed in Figure 1 and designated generally by the reference numeral 10. The usual internal combustion engine is provided thereon having the conventional exhaust pipe 12 extending therefrom.

A conduit 14 is angularly communicating with said exhaust pipe and a branch conduit 16 extends from said above mentioned conduit. A butterfly valve 18 is provided in said exhaust pipe 12 for the purpose of selectively opening and closing either the exhaust pipe or conduit 14. The construction of the said butterfly valve is conventional being a disc 20 pivoted to suitable perches 22 within said conduit and exhaust pipe. An arm 24 is secured to the pivot pin and is at substantially right angles to the longitudinal axis thereof. A resilient biasing means, preferably a spring 26 secured to the said arm 24 by any suitable conventional means and also secured to a selected member of the chassis 10.

At the end portion of the said conduit 14 and branch conduit 16, there is a sleeve 28 provided therearound. The said sleeve 28 terminates in a nozzle 30 for ejection purposes adjacent the rear wheels of a usual or conventional vehicle. The opposite end of the said sleeve 28 has a collar 32 thereunder abutting in securing relation, the said branch conduit 16. It will be noted from an inspection of Figure 1 that two identical constructions are provided in conjunction with the sleeve-ejection means described herein now and accordingly, it is deemed that only one description thereof is necessary. It is seen from an inspection of Figure 4, that a plurality of apertures 34 are provided the terminal portion of the said conduit 16 for muffling purposes and also for ejecting exhaust gases radially of the conduit in order to obviate a great portion of the undesir-

able back pressure sometimes encountered in devices of this nature.

A bracket 36 is secured to a convenient portion of the said chassis 10 and secured to a suitable perch 38 provided on a collar 40 encompassing the sleeve 28.

Going now to Figure 3, there is disclosed a bearing block 42 rigidly secured to the said sleeve 28 and a rod 44 slidably received therein. A disc valve 46 is journaled in said sleeve 28. Suitable conventional pivot means are provided for this purpose such as the pin 48 disclosed in Figure 6. A stop 50 is provided on the interior surface of the said sleeve 28 extending substantially all the way therearound. An arm 52 is rigidly secured to the said valve plate 46 and extends through a suitable aperture 54 in said sleeve 28. A stop 56 is secured to the said arm 52 engaging the inner surface of the said sleeve forming a stop in adjusting the nut 60 and to prevent accidental opening of the valve disc 46 due to jarring during normal operation of the vehicle. An aperture 58 is received in the said arm 52 adjacent one end thereof for the purpose of receiving a portion of the rod 44 therethrough. An adjustable friction means, preferably a nut 60 is threadedly received on the said rod 44 thereby providing a stop means for said arm 52. A second nut 62 is also received on the said rod 44 for the purpose of adjustably receiving a resilient biasing spring means 64 between the bearing block 42 and the last mentioned nut 62. It is quite apparent from an inspection of Figure 3 that this construction permits of selective adjustment of a valve means, the said valve means being responsive to the exhaust pressure of the internal combustion engine of the vehicle.

There is provided in the present invention two abrasive material retaining means and means for conducting and controlling the flow of abrasive material to the said sleeve 28. Accordingly it is believed that a description of only one of said systems is necessary for the full understanding of both thereof. A hopper or receptacle 70 is suitably secured to a convenient component of the chassis of a vehicle and a pipe 72 extends from the bottom portion thereof. The said pipe 72 extends into the said sleeve 28 thereby communicating the abrasive material carried by the said hopper 70 with the said sleeve 23.

Valve means are provided in the said conduits 72 for the purpose of regulating the flow of abrasive material. The preferable construction of the last mentioned valve means may be seen particularly well in Figure 8. A receptacle 74 is interposed in the line or pipe 72 and a conventional flat valve is journaled therein. The conventional valve consists of a plate 76 pivotally journaled on a stub shaft 78, said stub shaft extending through the said receptacle 74. An arm 80 is rigidly secured to the said stub shaft extending in right angular relation thereto. Resilient means for biasing the said plate 76 in a closed position are provided in the form of a spring 82 extending between the said arm 80 and a suitable portion of the chassis 10.

Taking now Figure 1, it may be readily seen that a master cable 84 is journaled about suitable pulleys 86 and 88 respectively, then said master cable 84 branches into minor cables 90 and 92 respectively. The said cable 90 extends directly to the arm 24 for the purpose of regulating the exhaust admission valve. The minor

cable 92 extends rearwardly of the vehicle branching again into two portions, one of which extends to each of said arms 80 for the purpose of regulating the abrasive material admission valve. It may be seen clearly that the amount of abrasive material may be regulated as well as the pressure from the exhaust pipe by a single actuating means. Further, the quantity of abrasive material or value of pressure taken from the exhaust line may be changed relative to each other by simple manipulation of cable, shortening or lengthening the same.

There has been described and illustrated a single preferred embodiment of the present invention capable of performing all of the specifically mentioned objects as well as ancillary objects. However, it is apparent to those skilled in the art that various changes including omissions and additions may be made herein without departing from the spirit of the invention. Accordingly, limitation is sought only in accordance with the scope of the following claims.

Having thus described the present invention, what is claimed as novel and improved is as follows:

1. An anti-skid device comprising a vehicle chassis, an exhaust pipe secured thereto, a conduit secured to said exhaust pipe, a branch conduit communicating with said conduit, means for retaining abrasive material communicating with said conduits, valve means associated with said retaining means and said conduit, common means for actuating all of said valve means, means for resiliently urging said valve means in a closed position, a muffler sleeve mounted at the ends of said conduit and branch conduit, pressure responsive valves disposed in said muffler sleeves, said common means comprising a plurality of cables journaled on said chassis, said cables terminating in a single master draw cable.

2. In an anti-skid device, a vehicle having a chassis and an exhaust pipe, a conduit secured to said exhaust pipe, a second conduit secured to said conduit, abrasive material retaining means on said chassis, conducting means connecting said retaining means and said conduits, valves in said conducting means and a valve at the junction of said first conduit and exhaust pipe, common means for actuating all of said valves simultaneously, a muffler sleeve at the end of said conduit and second conduit, a bearing on said sleeve, a valve in said sleeve, a rod journaled in said bearing and means for adjustably connecting said last mentioned valve and said rod.

3. The combination of claim 2, said adjustable connecting means including friction receiving means slidably received on said rod, a link connecting said last mentioned valve and said rod and a spring interposed between said friction securing means and said bearing.

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