April 6, 1954

P. J. SUNDHEIM

2,674,478

SANDER FOR AUTOMOBILES

Filed July 21, 1952

FIG. 1.

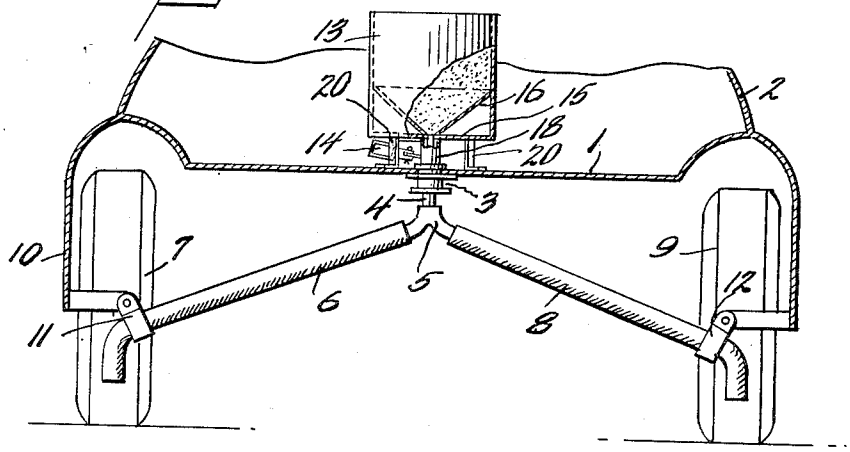


FIG. 2.

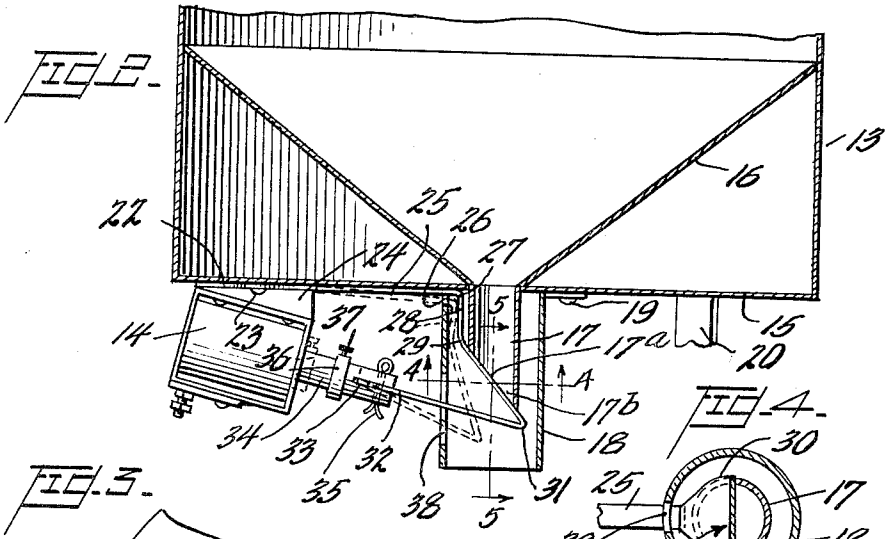


FIG. 3.

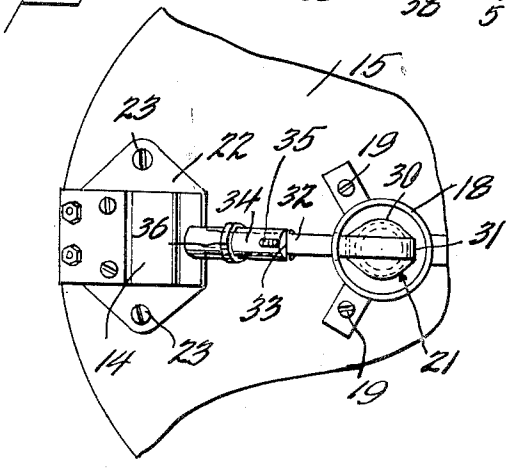
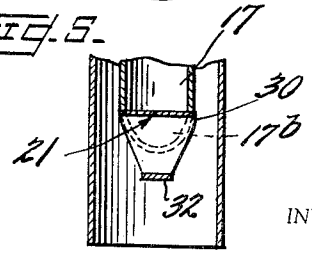


FIG. 4.

FIG. 5.



INVENTOR

Peter J. Sundheim

BY

Parker Cook

ATTORNEY

Patented Apr. 6, 1954

2,674,478

UNITED STATES PATENT OFFICE

2,674,478

SANDER FOR AUTOMOBILES

Peter J. Sundheim, Hackettstown, N. J.

Application July 21, 1952, Serial No. 300,103

1 Claim. (Cl. 291—28)

1

My invention relates to new and useful improvements in sanders for automobiles and more especially to a new and improved gate mechanism so that there is no possibility of the grit spilling or leaking from the discharge outlet when the gate is closed.

One of the difficulties heretofore encountered in sanders is that due to the continuous jouncing, vibrations or joltings of the car, the grit will leak past the gate mechanism even when the same is closed, and in this way a good deal of the grit will be wasted.

An object of the invention, therefore, is to provide a gate mechanism made from a single piece of spring metal and so bent and arranged that when the gate is closed any jouncing or bumping or vibration of the car will not interfere with the tight closure of the gate, so there will be absolutely no waste of the grit.

Still another object of the invention is to provide a gate made from one strip of spring metal, such as brass, and bent so that it may readily be moved to open the discharge outlet, but when once closed, the resiliency of the spring will hold the gate tightly in place until the gate is again operated by a solenoid.

With these and other objects in view, the invention consists in certain new and novel arrangements and combinations of parts, as will hereinafter be more fully described and pointed out in the claims.

Referring now to the drawings, showing a preferred embodiment,

Fig. 1 is a sectional view through the trunk compartment of a car, looking rearwardly,

Fig. 2 is an enlarged, sectional view of the sander and its gate mechanism, the dotted lines showing the gate in an open position,

Fig. 3 is a fragmentary bottom plan view of the gate,

Fig. 4 is a horizontal sectional view taken on line 4—4 of Fig. 2, looking in the direction of the arrows, and

Fig. 5 is an enlarged, vertical, sectional view taken on line 5—5 of Fig. 2, looking in the direction of the arrows.

Referring now to the several views and particularly to Fig. 1, there is sectionally shown the bottom 1 of the trunk compartment in the body 2 of an automobile. Secured in the bottom 1 and about centrally of its width there is shown a socket 3 which is rigidly fastened to the said bottom 1. Depending therefrom is the reducing nipple 4 which fits tightly within the bifurcated or branch coupling 5, so that a rubber hose 6

2

may extend in front of the rear wheel 7, and a like pipe 8 may extend in front of the rear wheel 9.

The pipe 6 may be hung to the fender 10 of the body 2 by the clamp 11, while the pipe 8 is clamped as at 12 in front of the aforementioned wheel 9.

The purpose of these pipes is to discharge grit in front of these wheels from a hopper 13 by the operation of a solenoid 14, as will shortly be mentioned.

Referring now to Figs. 1 and 2, there is shown a circular hopper 13 with its bottom plate 15; and mounted within the bottom portion of the hopper 13 is the false bottom 16, which is funnel-shaped so that grit in the hopper 13 will flow downwardly into a discharge pipe 17, which is the stem or spout of the funnel-shaped bottom 16.

It will be noticed that this pipe 17 has its end walls angularly cut or sheared as at 17*a* so there is an angular discharge opening 17*b*.

Encircling the discharge pipe 17 is a somewhat longer pipe 18, which is riveted as at 19 to the under-surface of the bottom plate 15 of the hopper 13.

Also secured to the bottom plate 15 of the hopper 13 are the supporting legs 20.

Now, the external diameter of the pipe 18 is slightly less than the internal diameter of the socket 3, which, it will be remembered, is secured in the bottom 1 of the body 2 so that to place the hopper 13 in position, it is only necessary to place the hopper 13 over the socket 3 so that the lower end of the pipe 18 extends slightly into the socket 3; and by bolting or screwing down the legs 20, the hopper 13 will be rigidly secured in place, so that any grit released from the hopper 13 will flow through the heretofore mentioned pipes 6 and 8 in front of the rear wheels 7 and 9.

Although I have not shown the cover for the hopper 13, one is always provided to keep any overflow or spilling of the grit from the hopper 13 after it is once filled.

Referring now to the gist of the invention, reference is made to the gate member 21 to open and close the opening 17*b* of the discharge pipe 17.

As mentioned earlier in the specification, in the sanders with which I am familiar, due to the continual vibrations or jouncing of the car, the gate or closure for the discharge opening of a sander would open enough to permit a leakage and waste of the sand or grit.

To insure an absolutely tight closure and prevent any unwanted opening of the gate member, I provide a gate member 21, preferably made of

one strip of resilient or flexible metal, such as brass, and bend the same so that when the solenoid is not operated and the gate is closed, the same is spring pressed and the resiliency of the gate member will tightly hold the same over the opening in the discharge pipe; and any bouncing or jouncing of the car will not affect the same.

Referring for the moment to Fig. 3, there is shown an enlarged base portion **22** of the gate member **21**, which is secured as at **23** to the bottom plate **15**; while over this portion **22** is the small wedge **24** on which the solenoid **14** is mounted, so that the solenoid **14** will extend at an angle to the horizontal.

Referring again to the gate member **21** which, it will be remembered, has its one end securely fastened to the bottom **15** of the hopper **13**, it then extends horizontally as at **25** and passes through an opening **26** in the pipe **18**, and then bent at right angles as at **27**. It then extends downwardly as at **28** to the point **29** where it extends angularly and at the same angle as the discharge end walls **17***a* of the pipe **17**, and presses tightly against the same.

The gate member **21** opposite the opening at **17***b* is also enlarged as at **30**, is circular in plan, to form the gate per se for the opening **17***b* in the end of the pipe **17**. The gate member **21** is then bent again as at **31** and, of course, reduced in diameter, as may be seen in Fig. 3, while its free end **32** fits within a slot **33** of the plunger **34** of the solenoid **14** and is held in position by the cotter key **35**.

To limit the inward movement of the plunger **34** of the solenoid **14**, I provide a small collar **36** that may be secured in place by set screws **37**, or any other efficient means may be used to limit the inward movement of the solenoid **14** to thus regulate the distance that the gate per se **30** may be pulled away from the lower end **17***b* of the discharge pipe **17**.

As also may be seen in Fig. 2, the portion **31** of the gate member **21** extends through a slot **38** formed in the side wall of the pipe **18** adjacent the plunger **34** of the solenoid **14**; and it will also be noted from the dotted line position in Fig. 2, after the solenoid **14** is operated and the gate per se **30** pulled away from the opening **17***b*, the gate per se **30** will shield the slot **38**, and the grit will tend to run or flow towards the right.

I have not shown the wiring diagram for operating the solenoid **14**, but it may be substantially as is shown in a pending application filed by me on the 29th day of April, 1950, Ser. No. 158,967.

Briefly, this shows how the solenoid may be operated by the operation of the brake pedal and/or by a switch mounted on the dashboard.

It will be noticed that, from the dotted lines in Fig. 2, when the gate member **21** is actuated by the solenoid **14**, it will pull part of the gate member **21** from its horizontal position under the hopper **13**, and will also tend to pull the lower part **31** of the gate member **21** from its parallel alignment with the plunger **34** of the solenoid **14**, and thus flex the whole gate member **21** so that the minute the current is turned off from the solenoid **14**, the gate member **21** will quickly assume its normal position.

In other words, the gate member **21** is in reality a flat spring, so that it will always force itself tightly against the opening **17***b* in the discharge pipe **17**.

It will be understood that the pull of the solenoid **14** is greater than the resistance of the gate member **21**, so that the operation of the gate member **21** may be quickly effected; but on the other hand, when the solenoid **14** is not energized, the gate member **21** with its enlarged gate **30** will be forced tightly against the aforementioned opening **17***b* of the discharge pipe **17** and position the plunger **34** for instant action.

By forming the gate member **21** in the manner shown, it is not necessary to use a helical spring; and I have found in actual usage that the gate arrangement as shown will never permit any leakage of grit from the hopper.

It will also be seen that the structure is exceedingly simple, as the gate member is made from one piece, is positive in action, and may readily be secured to the solenoid.

Many slight changes might be made without departing from the spirit and scope of the invention.

Having thus described my invention, what I claim is new and desire to secure by Letters Patent is:

In a sander for automobiles and the like, a hopper for holding grit, having a centrally located discharge pipe, a larger pipe encircling the said discharge pipe, a socket adapted to be secured in the bottom of a car, flexible discharge pipes leading from said socket to in front of the rear wheels of an automobile, said larger pipe fitting within the aforementioned socket, the walls of the discharge end of the pipe being cut at an angle to the horizontal; a solenoid, a resilient metal strip forming a gate member, secured at its one end to the underneath part of the hopper and then extending inwardly towards the center of the hopper, then downwardly, enlarged, and disposed at an angle similar to the angle of the opening of the discharge pipe, the enlarged portion sprung tightly against said opening to form a tight closure therefor, the gate member then extending rearwardly and secured to the plunger of the solenoid, so that an operation of the solenoid will pull the resilient gate member away from the said opening, while the resiliency of the gate member will again force the gate member tightly against said opening when the solenoid is not energized and position the plunger of the solenoid for instant operation.

References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
402,373	Whitehill	Apr. 30, 1889
978,152	Gutemuth	Dec. 13, 1910
1,164,562	Wilcox	Dec. 14, 1915
1,640,636	Barton	Aug. 30, 1927
2,334,181	Elston	Nov. 16, 1943