No. 690,913. Patented Jan. 14, 1902.

S. W. ALBERTSON.

SAND WAGON.

(Application filed Sept. 5, 1901.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.

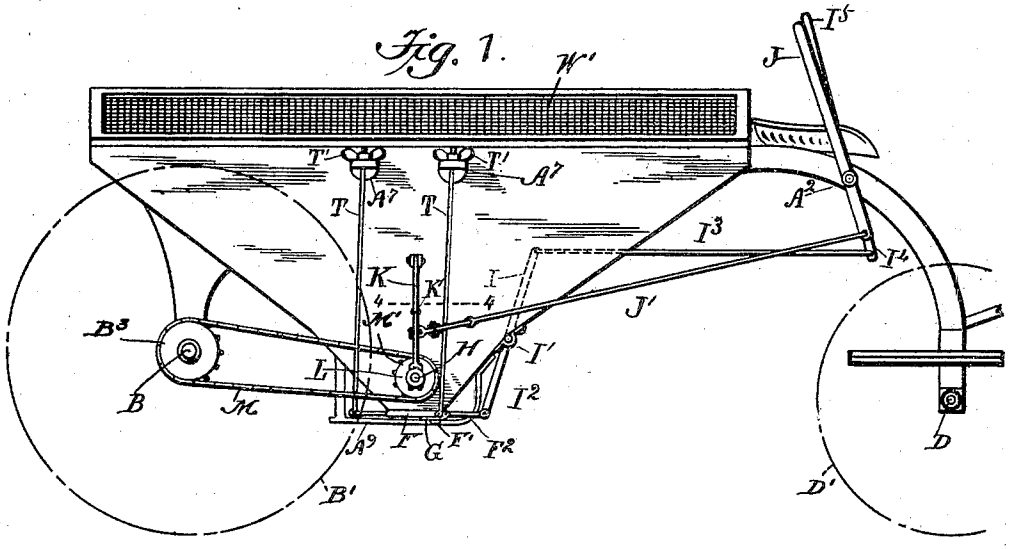


Fig. 2.

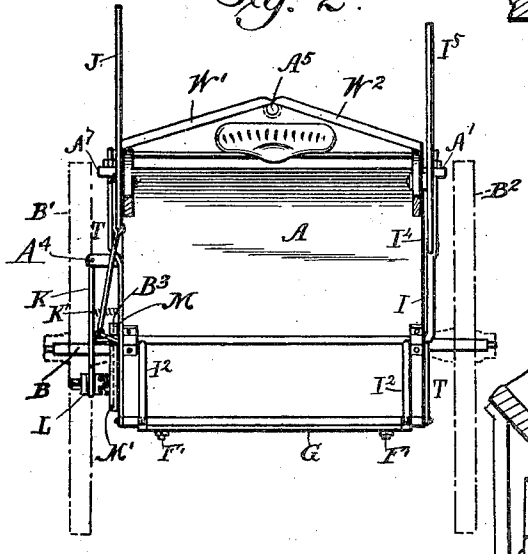


Fig. 4.

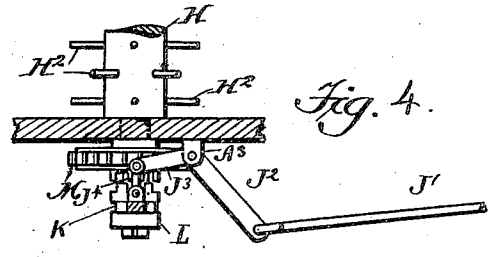
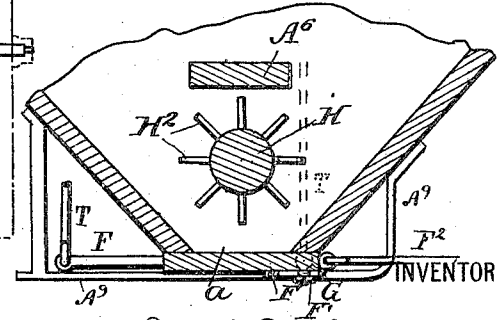


Fig. 3.



WITNESSES:

A. H. Appleman Jr.

J. B. Clautice

Silas W. Albertson
BY
Thomas Drew Stetson
ATTORNEY

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 690,913. Patented Jan. 14, 1902.

S. W. ALBERTSON.

SAND WAGON.

(Application filed Sept. 5, 1901.)

(No Model.) 2 Sheets—Sheet 2.

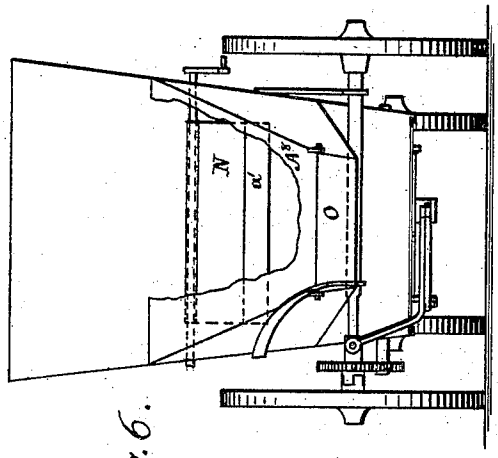


Fig. 6.

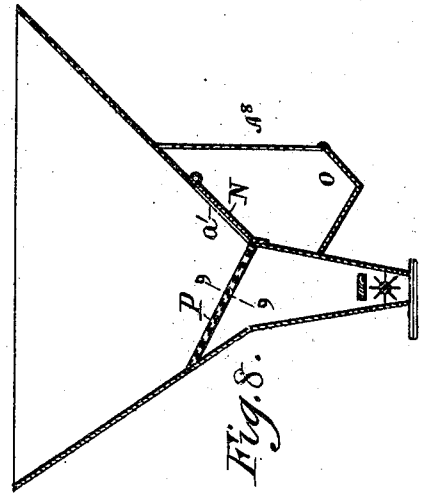


Fig. 8.

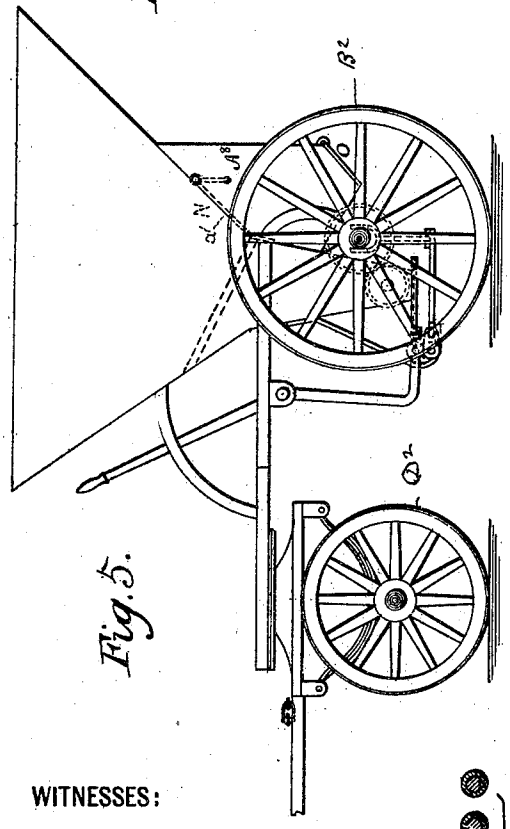


Fig. 5.

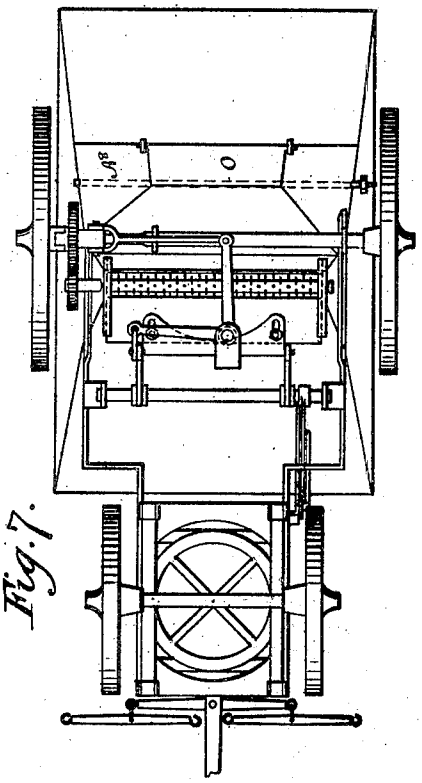


Fig. 7.

WITNESSES:

M. F. Boyle

J. B. Clautice



Fig. 9.

INVENTOR

Silas W. Albertson

BY

Thomas Drew Stetson

ATTORNEY

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

SILAS W. ALBERTSON, OF MINEOLA, NEW YORK.

SAND-WAGON.

SPECIFICATION forming part of Letters Patent No. 690,913, dated January 14, 1902.

Application filed September 5, 1901. Serial No. 74,373. (No model.)

To all whom it may concern:

Be it known that I, SILAS W. ALBERTSON, a citizen of the United States, residing at Mineola, in the county of Nassau, in the State of New York, have invented a certain new and useful Improvement in Sand-Wagons, of which the following is a specification.

The invention pertains to the class of wheeled structures adapted for receiving earth and distributing it in a thin layer as the machine is drawn along. It is more particularly intended for applying sand on macadamized roads, depositing it in a layer of about a quarter of an inch in thickness on an area of perhaps three feet in width along the middle of the road, which is the highest portion.

It is found that roads having macadamized surfaces, which are being extensively constructed, require frequent applications of as nearly pure sand as can conveniently be obtained. Except for difficulties due to objectionable materials in the sand and the labor of spreading it as it is left in heaps the operation can be rapidly performed. If there is a convenient source from which to obtain sand of good quality, one man with a pair of horses can bring the sand for half a mile or more of road in a day; but the presence of stones, roots, and the like much embarrasses the operations and the spreading involves labor and is certain to be finally imperfect.

I provide means for spreading the sand mechanically and evenly to any desired depth over an exactly-determined width on any desired part of the road. It will usually be preferred to have such sanded strip extend along the center of the road; but there may be two or more such strips produced by traversing a corresponding number of times.

The sand is distributed from a hopper through a narrow slot, which extends transversely of the wagon as the machine is driven along the road. There are devices for opening and closing this slot, with arrangements for adjusting the valve, on a carrier to promote the convenience of the operator and the evenness of distribution.

I mount permanently and conveniently on the machine two inclined screens, which allow the sand to be shoveled indiscriminately upon them and insure the retention of the sand and small gravel and the depositing of the large stones and other coarse material about in the path of the wheels. In a modification I provide in lieu of such top screens or in addition thereto an inclined series of light and uniform bars in the form of small tubes, which perform the double function of tying together the front and rear sides of the hopper in which the sand is carried and also constituting a screen to arrest the descent of any large masses. With such construction I provide a liberal back passage and connections for opening it, which can be operated at will. Such discharge-passage for the stones will be kept closed while the sand is being transported and applied and will be opened by the operator at his convenience.

The following is a description of what I consider the best means of carrying out the invention:

The accompanying drawings form a part of this specification.

Figure 1 is a side elevation with the supporting-wheels shown in outline. Fig. 2 is a corresponding front elevation with a portion broken away. Fig. 3 is a central longitudinal vertical section through a portion on a larger scale, and Fig. 4 is a horizontal section through certain portions on the same scale as Fig. 3. It is on the line 4 4 in Fig. 1. The remaining figures represent a modification. Fig. 5 is a side elevation showing the left side. Fig. 6 is a front elevation with a portion broken away. Fig. 7 is a plan view. Fig. 8 is a central longitudinal section through the hopper and an attached box, and Fig. 9 is a transverse section through a portion on a larger scale.

Similar letters of reference indicate corresponding parts in all the figures where they appear.

Referring to Figs. 1, 2, 3, and 4, B′ B^2 are the rear wheels, each turning freely on an axle B, which latter is rigidly set under the main body. The front is provided with a sufficiently stout drooping frame, which transfers the weight to a front axle D, having smaller bearing-wheels D′ D^2, adapted to go under the framing to facilitate turning.

A is a hopper having inclined sides and an opening *a*, extending transversely of the

structure at the bottom. F is a carrier under such opening or slot, capable of being moved forward and backward. On this is carried a slide-valve G, which is adjusted forward and backward thereon by means of screws F′, set in slots. As the carrier F is moved by any means forward or backward, the slide G, thus adjustably set thereon, regulates the effective width of the opening. A shaft H, extending transversely in the interior of the hopper near the bottom and slowly revolved, carries short teeth H^2, adapted to agitate the sand close to the adjustable opening. The inner end of the hub of the wheel B′ carries a sprocket-wheel B^3, which actuates a pitch-chain M, and thereby revolves a sprocket-wheel M′, turning loosely on the agitating-shaft H. The front and rear of the hopper are higher than the sides and sustain a longitudinal bar A^5, (see Fig. 2,) on which are hinged two wire nets W′ and W^2, which when allowed to sink to their lowest positions sit sufficiently inclined to serve as efficient screens. They can be easily lifted by their outer edges, turning on the bar A^5 at their inner edges to allow a shovel or other implement to be introduced to move the screened sand within the hopper if (as will often be the case) it lies too much on one side. When the screens are allowed to rest inclined, the sand is shoveled upon them from either side in the obvious manner in loading the wagon, and each instalment received near the bar A^5 slides more or less rapidly down the incline, being screened by letting its sand and finest gravel fall through into the interior of the hopper, while the coarser material rolls off the sides. The effect is to fill the interior with properly-screened material, while the rejected coaser material falling about in the line of the wheels tends to prevent the formation of ruts and to insure a better track for the wheels than would otherwise obtain in the soft sand at the loading-place.

A^6 (see Fig. 3) is a shield mounted over the shaft H, with the effect to sufficiently retard the descent of the sand to relieve such shaft, with its teeth H^2, from excessive pressure and friction as it is revolved and agitates the sand.

I is an upwardly-extending lever fixed on a shaft I′, extending across the structure and provided with a link I^3, which connects it to the lower arm I^4 of a hand-lever pivoted on the left at A′, having its upper arm I^5 arranged to be conveniently grasped by the driver. Two downwardly-extending arms I^2 are keyed on this shaft I′ and connect with the carrier F by the aid of links F^2. The friction which retards the frequently-recurring movements of the carrier F and slide G is reduced by suspensory links engaged with the projecting ends of the carrier at each side of the machine and holds the slide up to a sufficiently firm bearing against the bottom of the hopper. The carrier is indicated by F, the suspension-links by T, the thumb-nuts thereon by T′, and the lugs with which they engage by A^7. I provide a firm support A^9 on each side attached at a higher point on the front, curved at the proper level, and extending horizontally rearward under the slide. Such are ready to support the slide if the suspending-links T should fail from any cause. J is another hand-lever turning on a pivot A^2 at the right hand of the driver. It is connected by a link J′ with the outwardly-extending arm J^2 of a horizontally-turning bell-crank lever turning on a pivot A^3 on the right side of the machine. The other arm J^3 of this bell-crank connects by a link J^4 with a lever K, pivoted at A^4 above and taking hold by its forked lower end of a clutch-piece L, feathered on the shaft H. The inner face of this clutch-piece is offset clutchwise and adapted to engage with the correspondingly offset face of the sprocket-wheel M′. The clutch-piece L is arranged to revolve and also to be moved lengthwise on the shaft H. The upper end of the operating-lever J being moved forward by the driver engages the clutch L, causing the agitating-shaft H to revolve, and correspondingly a simple movement of the hand of the operator pressing forward the upper end of the lever I^5 closes the aperture *a* and stops the flow of sand. The attendant thus stops the flow and disengages the clutch before driving the machine back for another load and keeps the clutch disengaged and the escape of the sand stopped while the hopper is being filled with sand and the loaded machine is being driven to the place for commencing the work.

It will now be understood that the hopper A is loaded by shoveling, and after being driven to the place where the sand is wanted on the road the operator without stopping the horses moves the handle I^5 forward, and thus operates the connection and draws the valve G forward, so as to open the slot *a* and allow the sand to fall. The screws F′ having been previously tightened, with the valve set just right upon the carrier, this movement can be made with the handle in the position to make the operator's effort the most effective, and when the slot is thus opened the sand will fall so rapidly as to form a layer of the proper thickness on the ground while the horses are moving forward at an ordinary walk. He then also presses forward the handle J and through the connections operates the clutch L to set the agitating device H in motion, thus insuring that the sand is kept lively.

I attach importance to the adjustability of the slide on the carrier for a reason additional to that already stated—the changing of the amount of opening with a given position of the operating-handle. It may frequently occur that the sand comes too freely at one end of the aperture, so as to put too much sand on one side of the strip of road which is being sanded. By stopping the machine and changing the positions of the bolts F′ in the slots in the carrier F the excess can be transferred to the opposite side, or, as will usually be preferred,

both sides of the strip will be sanded to a uniform depth.

Figs. 5, 6, 7, 8, and 9 show a modification in which, besides sundry changes in the proportions, a series of small inclined tubes P are extended across the hopper from front to rear parallel and uniformly spaced. They are inclined rearward, as shown, and perform the double function of ties to brace the front and rear of the hopper and of a screen to arrest any stones remaining and carry them to the rear side of the hopper ready to be discharged. This screen may be so efficient as to dispense with the top screens W' W^2, and I have so represented this modification; but it may be used in connection with the top screens as a double safeguard against any large masses reaching the lower part of the hopper and inducing mischief. In this modification the screen P arrests any material which by passing through the top screens W' W^2 or in the absence of such shall have gotten into the hopper and which is in too-large masses to pass properly through the sometimes-contracted opening *a*. After the sand is deposited the stones remain on the screen P and the machine is taken back for another load. At some period before again loading, the driver operates a suitable appliance (shown in dotted lines in Fig. 5) and discharges the stones and sticks through the aperture *a'* into the box A^8, after which he readjusts the door N to again close the aperture *a'*, and the structure is ready to receive another load. The box A^8 is rigidly attached to the rear side of the hopper A in the position to retain the material received through the aperture *a'* when the door N is open. When the stones are numerous or large, they should be discharged into the box A^8 at each trip, and the box should be emptied frequently by opening the discharge-door O; but if sufficiently pure sand can be obtained or if the top screens W' W^2 are employed and serve well these operations may be delayed accordingly or postponed indefinitely.

Other modifications may be made without departing from the principle or sacrificing the advantages of the invention. The inclination of the sides of the hopper may be varied within wide limits. The height at which the hopper is carried may be varied. I prefer to have it as low as practicable.

There may be ordinary curved segments, with notches to receive and hold the levers I^5 and J in any position in which they may be set.

The suspending-links T may be dispensed with and the supports A^9 made to serve alone in supporting the slide.

K' is a contractile spring urging the lever K toward the hopper, tending to maintain a tensional strain on the link J'. This can be omitted if preferred in any case.

I claim as my invention—

1. In a vehicle of the character described, a hopper A having a discharge-slot *a* and means for opening and closing such slot, the pair of oppositely-inclined screens W' W^2 arranged above, the revolving agitator H H^2 and means for operating it, receiving motion from the carrying-wheels controlled by a clutch, in combination with a lever I^5 and connections therefrom adapted to control the valve, all arranged to serve substantially as herein specified.

2. In combination, a hopper A, wheels for carrying the same, a delivery-slot *a* at the bottom of the hopper, a shaft H having teeth H^2 with provisions for revolving it and a shield A^6 extending across the interior of the hopper over the said shaft, all substantially as herein specified.

3. In combination, a hopper A, wheels B' B^2 D' D^2 for carrying the same, a transversely-extended delivery-aperture *a* at the bottom of the hopper, a toothed shaft H H^2 with provisions for revolving it, the clutch L controlling the connection of a driving-wheel B' with the said shaft, provisions by the carrier F uniformly moved by the lever, a slide G adjustable on such carrier for varying the opening with a given movement of the carrier, and an operating-lever I^5 arranged to be worked by the driver with connections therefrom to the carrier, all substantially as herein specified.

4. In a vehicle of the character described, a hopper having a transverse discharge aperture or slot *a* and means for opening and closing such slot, the revolving agitator H H^2 and means for operating it, receiving motion from a carrying-wheel controlled by a clutch, and a screen for the sand carried with the wagon and constituting a part thereof in combination with each other and with a transversely-extended aperture *a* and a slide G with means for conveniently opening and closing it, all arranged for joint operation substantially as herein specified.

In testimony that I claim the invention above set forth I affix my signature in presence of two witnesses.

SILAS W. ALBERTSON.

Witnesses:
J. B. CLAUTICE,
M. F. BOYLE.