July 10, 1934. F. B. HURT 1,966,122

AGGREGATE SPREADER

Filed March 30, 1931 4 Sheets-Sheet 1

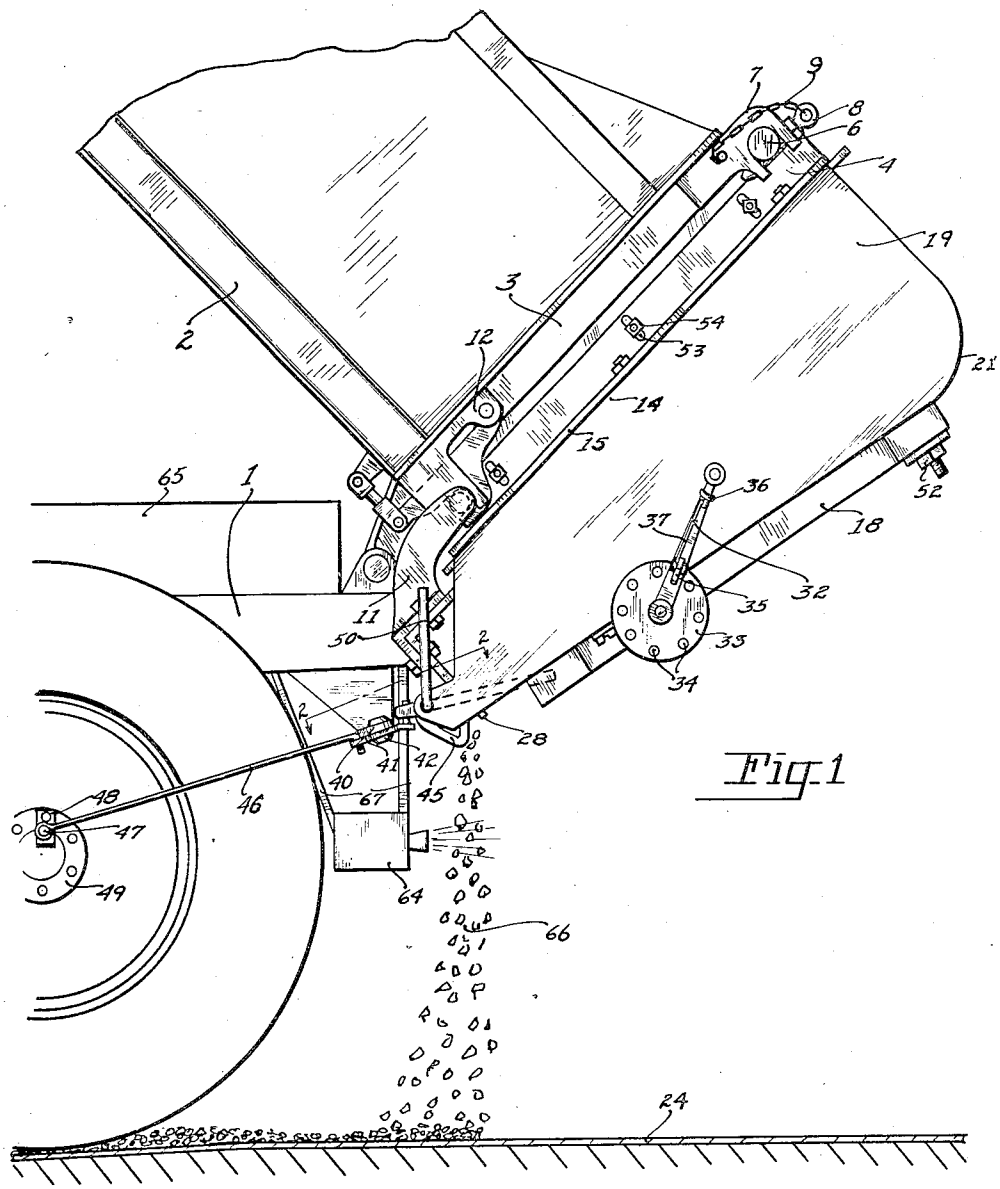


Fig. 1

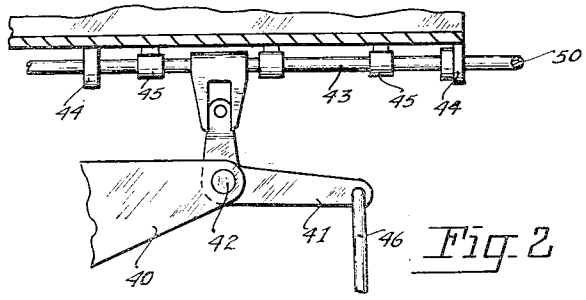


Fig. 2

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July 10, 1934. F. B. HURT 1,966,122

AGGREGATE SPREADER

Filed March 30, 1931 4 Sheets-Sheet 2

Fig. 3

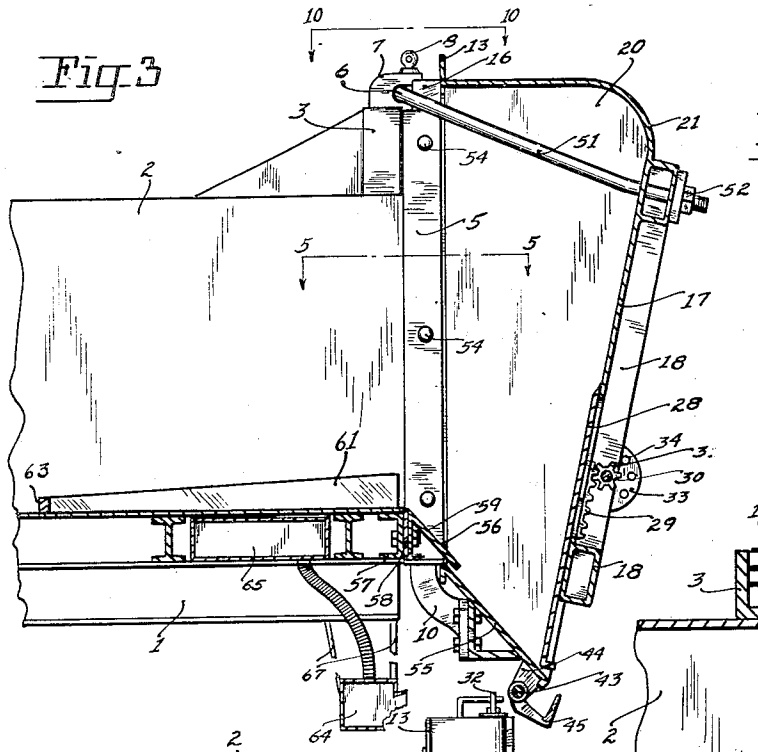
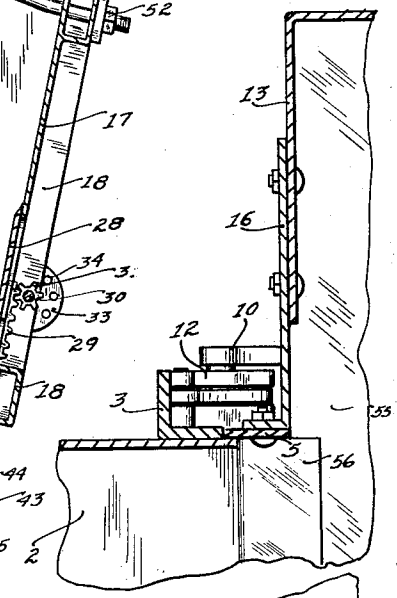


Fig. 5



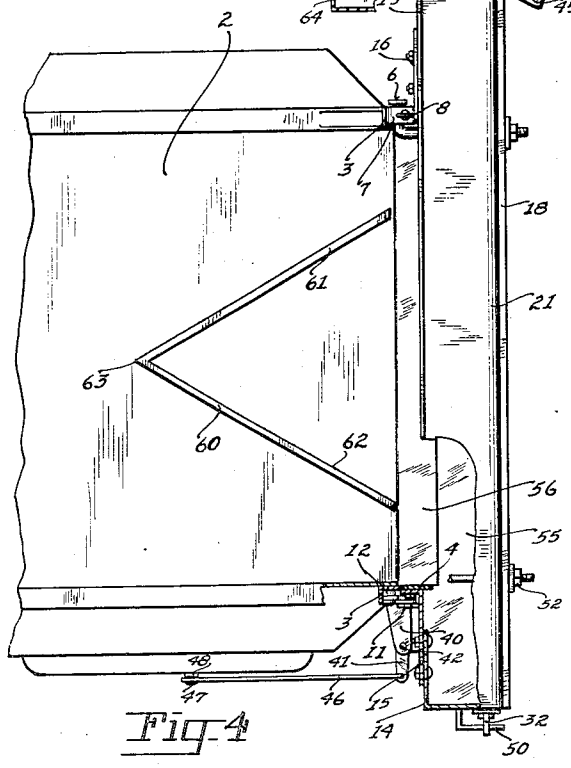


Fig. 4

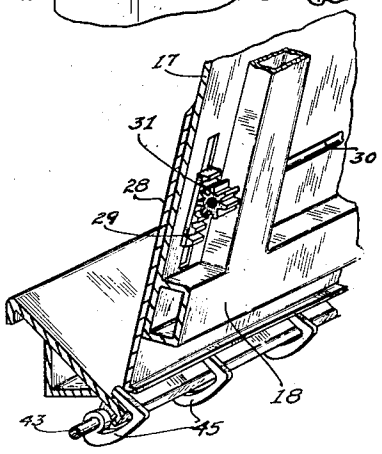


Fig. 6

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July 10, 1934. F. B. HURT 1,966,122

AGGREGATE SPREADER

Filed March 30, 1931 4 Sheets-Sheet 3

Fig. 8

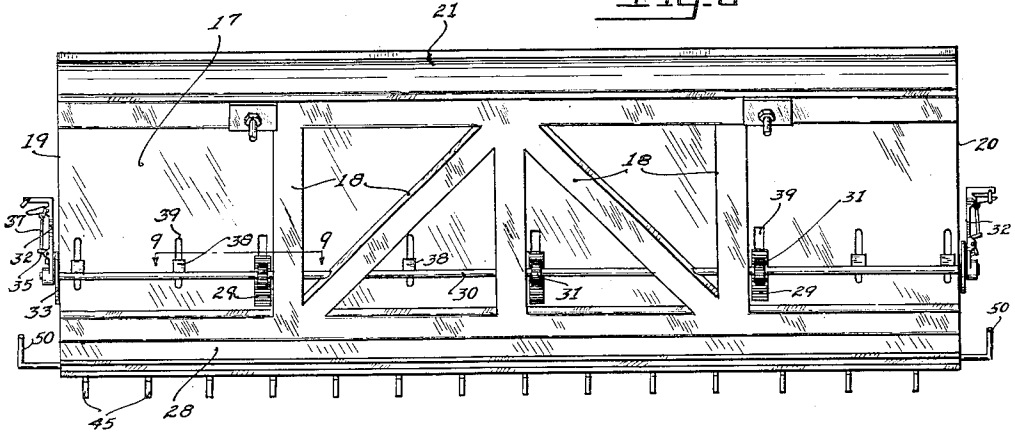
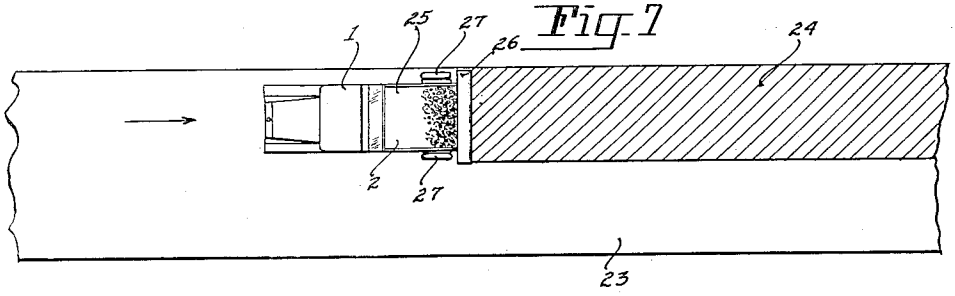


Fig. 7



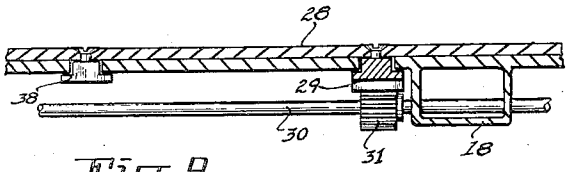


Fig. 9

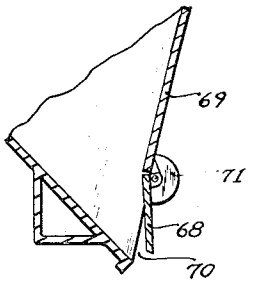
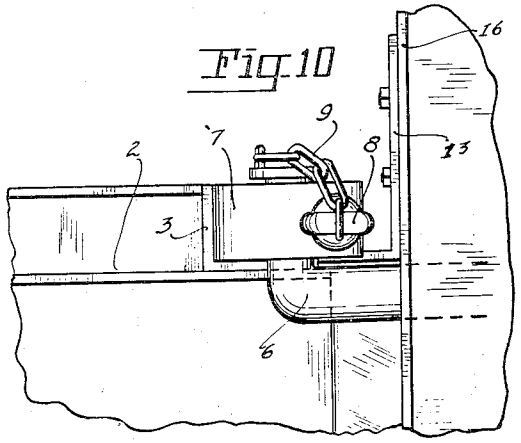


Fig. 11

Fig. 10



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July 10, 1934. F. B. HURT 1,966,122

AGGREGATE SPREADER

Filed March 30, 1931 4 Sheets-Sheet 4

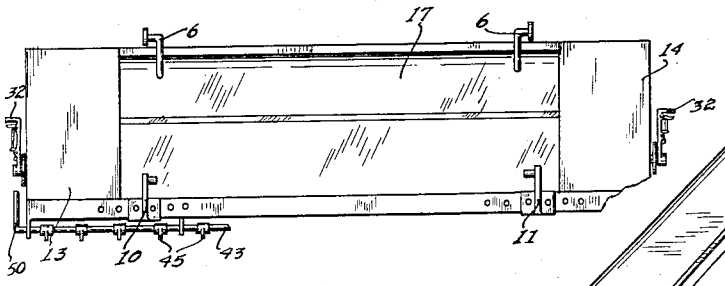


Fig 13

Fig 12

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Patented July 10, 1934

1,966,122

UNITED STATES PATENT OFFICE

1,966,122

AGGREGATE SPREADER

Frank B. Hurt, La Grande, Oreg.

Application March 30, 1931, Serial No. 526,347

10 Claims. (Cl. 94—44)

My invention is intended for use by road builders road surfacers and others, in the placing of a top coating of crushed rock aggregate, or other wearing surface upon a roadway, that has been prepared and has placed thereupon a binding agent.

The material is to be delivered from a truck body into a spreader head, that is detachably secured thereto. The spreader head is adapted for delivering a relatively thin coat of crushed rock aggregate upon the prepared surface of a greater width than that of the total width of the truck. The material is spread as the truck is backed over the mass of the material being deposited upon the binder agent. The crushed rock being deposited upon the binder agent in advance of the wheels, so that the wheels of the truck pass over the crushed rock aggregate that is being delivered upon the binder coating previously placed upon the roadway.

The device consists primarily of a metal spreader head comprised of spaced end walls and an inner wall extending from the body of the truck outward to and engaging the end walls. Means being provided to extend the end walls of the spreader to form a device of required width for coating the surface to the desired width. The device being made sufficiently strong to carry the full end thrust of the crushed rock aggregates, when the truck body is tilted to dumping position.

A movable plate is associated with the outside wall of the spreader head in order that an opening of predetermined breadth may be created through which the aggregate, that is to be deposited upon the roadway, flows.

I provide an agitator within the discharge hopper, the purpose and object of which is to prevent the arching of the material within the discharge opening, the arching of which, prevents a uniform flowing of the aggregate materials through the discharge opening. Manually settable means being provided for raising a movable plate to form an opening of predetermined set breadth. Means being associated with the spreader head for detachably securing the same to the truck body without the use of bolts or rivets. The spreader head being closed at the top to build up a supply of materials within the spreader head that will permit a flowing of materials laterally of the spreader head to create a ribbon of material being discharged thereupon to the full width of the spreader head.

One of the objects of my invention is to provide a spreader head that will form the rear end gate of a truck.

A further object of my invention consists in providing a spreader head that may be removably secured to a truck body and that will form the rear end gate of the truck, and into which, the materials to be spread, will flow directly from the truck body and that will facilitate the spreading of a coating material of crushed rock by gravity feed of a greater width than that of the total width of the truck.

A still further object of my invention consists in providing a removable spreader head adapted for being removably secured to a truck body and that will form the rear end gate of the truck and act as a feeding hopper for the materials and from which the same will flow by gravity upon the roadway, to form a surface coating. The material is spread as the truck is back thereover at a greater width than that of the total width of the truck.

A still further object of my invention consists in providing a spreader head comprised of but few parts, that may be easily adapted to a truck body and be removably secured thereto and that may be easily and quickly adjusted for forming a coating of material upon a roadway of desired width.

A still further object of my invention consists in providing a spreader head that will permit a coating of material of crushed rock, or other aggregate of uniform thickness and width to flow therefrom until practically the total contents of the truck body of crushed rock aggregate, will flow therethrough and be delivered upon the roadway in a width greater than that of the truck body and of the required width.

With these and incidental objects in view, the invention consists in certain novel features of construction and combination of parts, the essential elements of which are set forth in the appended claims, and a preferred form of embodiment of which is hereinafter shown with reference to the drawings which accompany and form a part of this specification.

In the drawings:

Fig. 1 is an end view of the spreader head, illustrating the same in position upon a truck body and illustrating the truck body raised in dumping position for discharging the material to be spread, through the spreader head.

Fig. 2 is a fragmentary, sectional side view of the agitator associated with the discharge outlet of the spreader head. The same being taken on

line 2—2 of Fig. 1, looking in the direction indicated.

Fig. 3 is a sectional, end view of the spreader head and a fragmentary, sectional side view of the truck body, illustrating the spreader head in position for retaining materials therein.

Fig. 4 is a top, plan view, partially in section of the mechanism illustrated in Fig. 3.

Fig. 5 is a fragmentary sectional plan view of the mechanism illustrated in Fig. 3, the same being taken on line 5—5 of Fig. 3, looking in the direction indicated.

Fig. 6 is a fragmentary, sectional, perspective end view, of the bottom of the spreader head and of the rear wall of the same, illustrating the rack, and pinion associated with the closure plate for opening and closing the discharge outlet of the spreader head.

Fig. 7 is a top, plan view of the motor truck the spreader head and the roadway and illustrating the truck as being backed up for covering the binder coating of the roadway with materials.

Fig. 8 is a rear view of the spreader head showing the same removed from the truck.

Fig. 9 is a fragmentary, sectional, plan view of the elevating mechanism for raising and lowering the closure of the spreader head, the same being taken on line 9—9 of Fig. 8, looking in the direction indicated.

Fig. 10 is a fragmentary, top plan view of the spreader head and truck body and illustrating the means of attaching the spreader head to the truck body. The same being taken on line 10—10 of Fig. 3, looking in the direction indicated.

Fig. 11 is a fragmentary, sectional, end view of a modified form of closure associated with the spreader head illustrating the closure, as being partially open.

Fig. 12 is a perspective, end view of the spreader head shown removed from the truck body the same being a view of the side of the spreader head disposed adjacent and attached to the truck body.

Fig. 13 is a side view of the spreader head that is disposed adjacent the truck body.

Like reference characters refer to like parts throughout the several views.

My invention is adapted for being removably secured to a truck body and has for its purpose and object the receiving of crushed rock aggregate therein and for distributing the same at a predetermined width and thickness upon a binder coating of bitumen material placed upon the roadway. The same to be applied by the truck, as the same is backed over the spread material, in order that the wheels of the truck may not be made to directly engage upon the spread material that is to be applied, and that has been applied to the binder agent of the road.

Heretofore in devices of this kind the material has been delivered from the truck body through the end gate of the truck into the spreader head and from there delivered upon the roadway. Through the use of my new and improved device I remove the rear end gate of the truck and removably attach my spreader head thereto in order that the materials from the truck body may be delivered directly into the spreader head.

It is essential in the use of devices of this kind that the spreader head be of greater width than the total width of the truck in order that the wheels of the truck may not be permitted to engage directly upon the binder agent. For this reason it is necessary for the slope of the aggregate as it passes the end of the truck body, to flow laterally into the spreader head in order that a greater width of spread aggregate may be applied to the road than the width of the truck body.

The materials are delivered by gravity from the truck body into the spreader head and the same flows therethrough, continuously until the whole load has been distributed therein, this is made possible because of the fact, that the truck body is elevated at about 45 degrees. When so arranged, and when so operated, a uniform thickness of aggregate may be delivered from the spreader head and deposited upon the roadway, because the spreader head will be filled at all times until practically all of the material disposed within the truck body has flowed therefrom into the spreader head.

My invention is intended for use in conjunction with an automobile truck 1 that has a tiltable body 2 associated with the truck so that the material will flow, by gravity, from the truck body when the truck body is tilted to the desired angle. The truck body has an attachment frame work 3 secured to the rear end of the truck body that is adapted for holding an end gate thereto with locking and unlocking means being provided for the end gate for hinging the end gate to the frame, at both the top and bottom edges.

My device is so made that the same may be made to replace the rear end gate of the truck and to simultaneously serve the purpose of a rear end gate and a spreader head combined.

The spreader head, when assembled and placed upon a truck, has a greater width than the total width of the truck, in order that the spreader head may place a layer, or coating or material upon a road surface to be top dressed, that will be wider than the truck. This is done in order that the truck wheels may not engage the binding agent for securing the top dressing to the roadway. The truck is backed up, for laying the top coating as the same is released from the spreader head. The spreader head is adapted for being removably secured to the truck body and for being attached thereto in any suitable manner.

In the drawings I have shown one of the best known types of rear-end gate attachment, now in use upon a truck body that is used for the placing of aggregates upon a roadway; but I do not wish to be limited to this form of attaching the spreader head, as the same may be attached to a truck body in various and sundry ways.

A pair of spaced structural members 4 and 5 are so placed at the rear of the spreader head that the same may be made to engage the side frames of the truck body to which the rear end gate is normally attached. A locking bar 6 is disposed at the top of the spreader head assembly that is adapted for being secured in place to the bracket 7 by a locking pin 8. The locking pin 8 is secured to the bifurcated bracket 7 by any suitable means, as through the use of a chain 9. Brackets 10 and 11 are secured to the lower edge and to the inside plate of the spreader head, the same being adapted for engagement with suitable brackets 12 secured to the lower frame work of the truck body. The spreader head is comprised of rear end plates 13 and 14 and having adjustable plates 15 and 16 secured to the end plates 13 and 14, in order to adapt the spreader head to truck bodies of different widths. An outside plate, or rear end plate 17, is disposed

longitudinally of the truck body and the same is reinforced by a fabricated reinforced frame work 18. The reinforcing being made sufficiently strong, and rugged, to absorb the full end thrust of the load of aggregates that are placed thereupon when the truck body is tilted into unloading position.

The spreader head has end plates 19 and 20 disposed at its oppositely disposed ends and the back plate is rounded, or ovaled, as shown at 21 and extends over the upper end of the end plates and terminates in a flange 22 that is disposed longitudinally of the spreader head. The flange affords strength to the assembly and affords means for attaching the back plates and associated elements thereto. The spreader thus made builds up a breast of material in the spreader head for the full height of the spreader head. Where the spreader head is to be used as a rear end gate this breast affords a means for spreading the material to a greater width than is possible by other means and facilitates the spreading of the material of uniform width to the total width of the road to be covered, until practically all of the materials have been drained from the spreader head and from the truck body.

The closing of the upper side of the spreader head and the increasing of the depth of the spreader head further facilitates the building up of a stock of materials within the spreader head that may be utilized in the covering of the roadway for a maximum width, for a maximum distance.

I have illustrated in Fig. 7 the use to which the spreader head is to be used in which the roadway 23 has a surface coating binder agent placed upon the roadway for a part of its width, as illustrated at 24 and the aggregate is carried within a truck 25 and the aggregate is spread upon the binder coating by the backing of the truck and the discharging of the aggregate through the spreader head 26 upon the surface to be coated. In so doing the rear wheels 27 of the truck do not directly contact the binding agent of the roadway that has been coated but is spaced apart by the coating of rock aggregate that is spread upon the binding agent, in advance of the wheels.

A gate closure 28 is slidably disposed relative to the back plate of the spreader head. The closure being adapted for being reciprocated vertically. Segments of gear rack 29 are secured to the closure. A shaft 30 runs longitudinally of the spreader head and is journaled within suitable journals formed integral with the frame work 18 of the spreader head. Pinions 31 are mounted upon the shaft and they coact with the rack segments 29. A hand manipulative crank 32 is associated with the outer end of the shaft. In order to facilitate the manipulation of the closure plate from the oppositely disposed ends of the spreader head a crank assembly is placed upon each end of the shaft 30.

A plate 33 is secured to the frame of the spreader head and a plurality of spaced holes 34 are disposed within the plate 33. A locking pawl 35 is hingedly secured to the lever 32 and the same is adapted for being manipulated by a hand lever 36 that is secured to the crank 32 and a link 37 connects the hand lever with the pawl 35. As the crank is rotated, to position the plate to create the desired opening in the spreader head, through which the aggregate materials flow; the same may be locked by the engaging of the pawl 35 within one of the spaced holes 34.

The plate 28 is intimately held in engagement with the inside surface of the back plate by a connecting slide 38 being secured to the plate 28 and the head of the slide engaging the outside of the back plate. The neck of the slide passing through the slot 39. A bracket 40 is secured to the frame of the truck and a bell crank 41 is rockably disposed about a journal pin 42 disposed upon the bracket. In the spreading of aggregates, unless the same are in finely comminuted state, the same have a tendency to arch over at the point of discharge and to not flow. It is therefore desirable to place an agitating head within the materials in order that the materials may be agitated periodically, or at frequent intervals. I do this by running a bar 43 externally of the spreader head and support the same in suitable bearings 44. Agitating plates 45 are secured to the bar 43 that have upwardly extending and that engage with the materials and agitate the same, to thereby prevent the same arching over at the point of discharge.

Where it is desirable to do this frequently and continuously, a link 46 is secured to one end of the bell and the same is attached by a suitable wrist pin 47 outwardly extending from a plate 48 that is secured off center to the hub 49 of the wheel of the truck. As the wheel is rotated a sliding movement will be imparted to the agitating head. A hand engaging handle 50 is formed upon the outer ends of the bar 43. The upturned handles are disposed at the oppositely disposed ends of the spreader head in order that the agitating head may be manually manipulated from either end of the spreader head when the same is disconnected from the hub of the wheel. This may be accomplished by the removal of the link 46.

In the spreading of the aggregate upon certain classes of work it may be found desirable to turn the agitating head out of registry with the discharge opening. In the securing of the spreader head to the truck, tension bolts 51, as illustrated in Fig. 3, may be secured upon its one end to the bracket 7 of the truck body and the oppositely disposed end of the bolt passing through the spreader head and terminating in a nut 52. The relatively tight working relationship being formed between the truck body and the flange 4 by the placing of a plurality of slots 53. Bolts 54 passing through the end gate frame of the truck body and through the flange by passing fastening bolts through the slots 53.

In order to prevent the leakage of materials over the opening disposed between the rear end of the truck body and the bottom 55 of the spreader head, I place a flanged plate 56 over the opening and secure the same to the back channel 57 of the truck frame. To prevent the wedging of materials between the assembled elements, I place a compressible gasket 58, of live rubber or other suitable material, as illustrated in Fig. 12, between the flanged plate 56 and the channel 57. The assembly being secured together by any suitable fastening means as through the use of bolts 59.

In order that I may distribute the last of the load being poured from the truck body, into the spreader head, I place a distributor head 60 within the truck body, and secure the same to the top side of the bottom of the truck body. The same may be made having diverging sides 61 and 62, that come together at 63 central of the truck and rearwardly diverge. These diverging sides force a part of the materials outward from the

central portion of the truck body to the sides of the truck body and into the spreader head.

Referring to Fig. 3 of the drawings, the diverging side wall members are higher at the rear of the truck than they are at the apex of the sides, in order that materials may flow over the sides, until the load is fairly well delivered from the truck body.

Referring to Fig. 1, I place an air chest 64, at the rear of the truck, and deliver air under pressure thereto from any suitable source of air supply as from a tank 65. The purpose and object of the air chest is to deliver air thereinto, under pressure and force the same therefrom, through the stream of aggregate 66 flowing from the spreader head and to remove the dust particles from the material in advance of its final deposit upon the binder agent 24 of the road to be top surfaced. The air chest being supported from the truck body by any suitable bracket support 67.

Referring to Fig. 11 the release gate 68 may be hingedly secured to the back plate 69 of the spreader head and the opening 70 be predetermined by the locking of the gate 68 relative to the disk 70, by any suitable means not here shown.

While the form of mechanism herein shown and described is admirably adapted to fulfill the objects primarily stated, it is to be understood that it is not intended to confine the invention to the one form of embodiment herein shown and described, as it is susceptible of embodiment in various forms, all coming within the scope of the claims which follow:

What I claim is:

1. In a device of the class described, the combination of a truck body, a spreader head adapted for forming the end gate of the truck, the spreader head being of substantially greater width than that of the truck body, an opening disposed longitudinally of the spreader head and at the outer lower end of the spreader head, a plate movably disposed upon the inner surface of the spreader head, means disposed externally of the spreader head adapted for positioning the plate to predetermine the depth of the opening, means for agitating the aggregate in advance of the same flowing through the opening, means for distributing the aggregate uniformly over the spreader head, and means for cleaning the aggregate at the time of dumping.

2. In a device of the class described, the combination of a truck body, a spreader head removably secured to the truck body and adapted to form the rear end gate of the truck body, means for releasing a stream of predetermined thickness from the spreader head, means for agitating the aggregate to prevent the arching of the aggregate to be fed through the opening, and means for cleaning the aggregate.

3. In a device of the class described, the combination of an automatic truck and truck body, a spreader head removably attachable to the truck body and adapted for serving simultaneously as a spreader head and as the rear end gate for the truck body, an agitator head disposed in the spreader head and adapted for being mechanically manipulated, a lug eccentrically positioned upon the hub of a rear wheel of the truck, a connecting rod between the lug and the means for manipulating the agitator, and means for removing foreign matter from the aggregate before releasing.

4. In a device of the class described, the combination of a truck body having means for detachably attaching a rear end gate to the truck body, a spreader head attachable to the attaching means for securing the rear end gate to the truck body, the spreader head being substantially wider than the truck body and adaptable for forming the rear end gate of the truck body when attached thereto, means for distributing aggregate uniformly over the spreader head, an adjustable outlet disposed longitudinally of the outer lower side of the spreader head, and selective means for agitating the aggregates to be fed, by gravity, through the adjustable outlet, means disposed adjacent the outlet, adapted for preventing the arching of the materials at the point of release from the spreader head, and means disposed adjacent the outlet to clean the aggregate from dust before depositing.

5. In a device of the class described, the combination of a truck body, a spreader head adapted for being removably attached to the rear end of the truck body and for forming the rear end gate therefor, an adjustable opening disposed longitudinally of the lower side of the spreader head, means for uniformly spreading the aggregate over the spreader head, selective means for agitating the materials adjacent the point of release of the material from the spreader head, and means for blowing the dust from the aggregates after the same have been released from the spreader head.

6. In a device of the class described, the combination of a tiltable truck body, a spreader head attachable to the truck body and adapted for forming the rear end gate of the truck body when attached, a plate adapted for covering the space between the bottom of the truck body and the bottom of the spreader head and a compressible bar disposed between the meeting surfaces of the spreader head and the bottom of the cross brace of the truck body.

7. In a device of the class described, the combination of a truck, a tiltable body mounted upon the truck, a spreader head detachably attachable to the truck and adapted for forming the rear end gate of the truck body when attached thereto, means for agitating the materials within the spreader head and means for removing the dust particles from the material after they have been released from the spreader head.

8. In a device of the class described, the combination of a tiltable truck body, a spreader head attachable to the truck body and adapted to form the rear end gate therefor when attached, the spreader head being substantially wider than the truck body, an adjustable head for releasing materials from the spreader head in predetermined stream thickness, means for distributing the last materials to flow into the spreader head from the truck body substantially over the length of the spreader head, means for agitating the materials adjacent the adjustable release opening in the spreader head and means for removing the dust particles from the materials after they have been released from the spreader head.

9. In a device of the class described, the combination of a truck body, a spreader head attachable to the truck body and for forming the rear end gate therefor, means for distributing the last of the materials to be poured from the truck body into the spreader head uniformly over the length of the spreader head, an adjustable opening disposed longitudinally of the spreader head, and means for agitating the materials in the spreader head adjacent the adjustable release opening, said means including a plurality of upstanding arms secured to a reciprocally mounted

shaft connected with a bell crank and a link connected at one of its ends with the bell crank and at its opposite end with a pin secured to one wheel of the truck.

10. A method of placing a topping coat upon a binder agent of a roadway consisting in the delivering of the topping material into a spreader head, the release of the aggregates in a uniform stream from the spreader head upon the binder agent, the agitating of the mass adjacent its point of release from the spreader head and the removing of the dust particles from the topping materials after its release from the spreader head and before the same have reached the binder material.

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