Jan. 30, 1962 H. C. WILTON ET AL 3,018,908

CONVEYOR FOR DISPENSING CONTENTS OF DUMP TRUCKS

Original Filed April 3, 1958 3 Sheets-Sheet 1

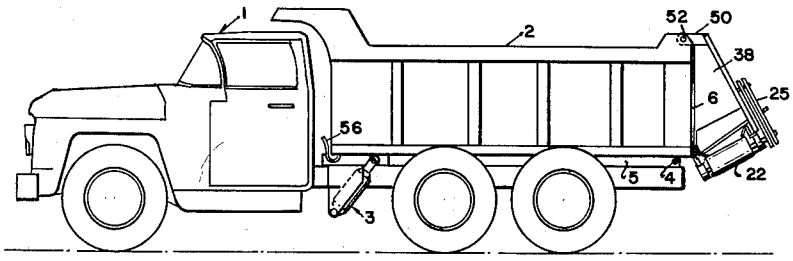


Fig. 1

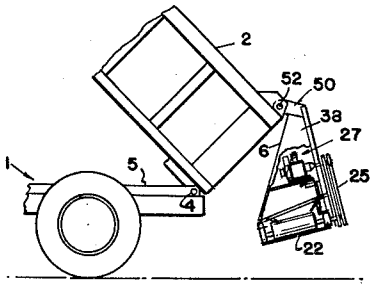


Fig. 2

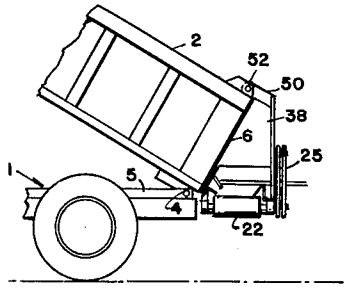


Fig. 3

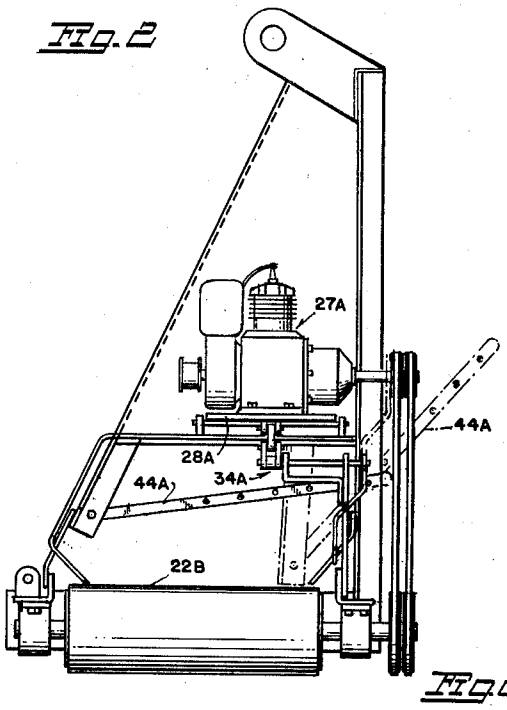


Fig. 8

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CONVEYOR FOR DISPENSING CONTENTS OF DUMP TRUCKS

Original Filed April 3, 1958 3 Sheets-Sheet 2

FIG. 4

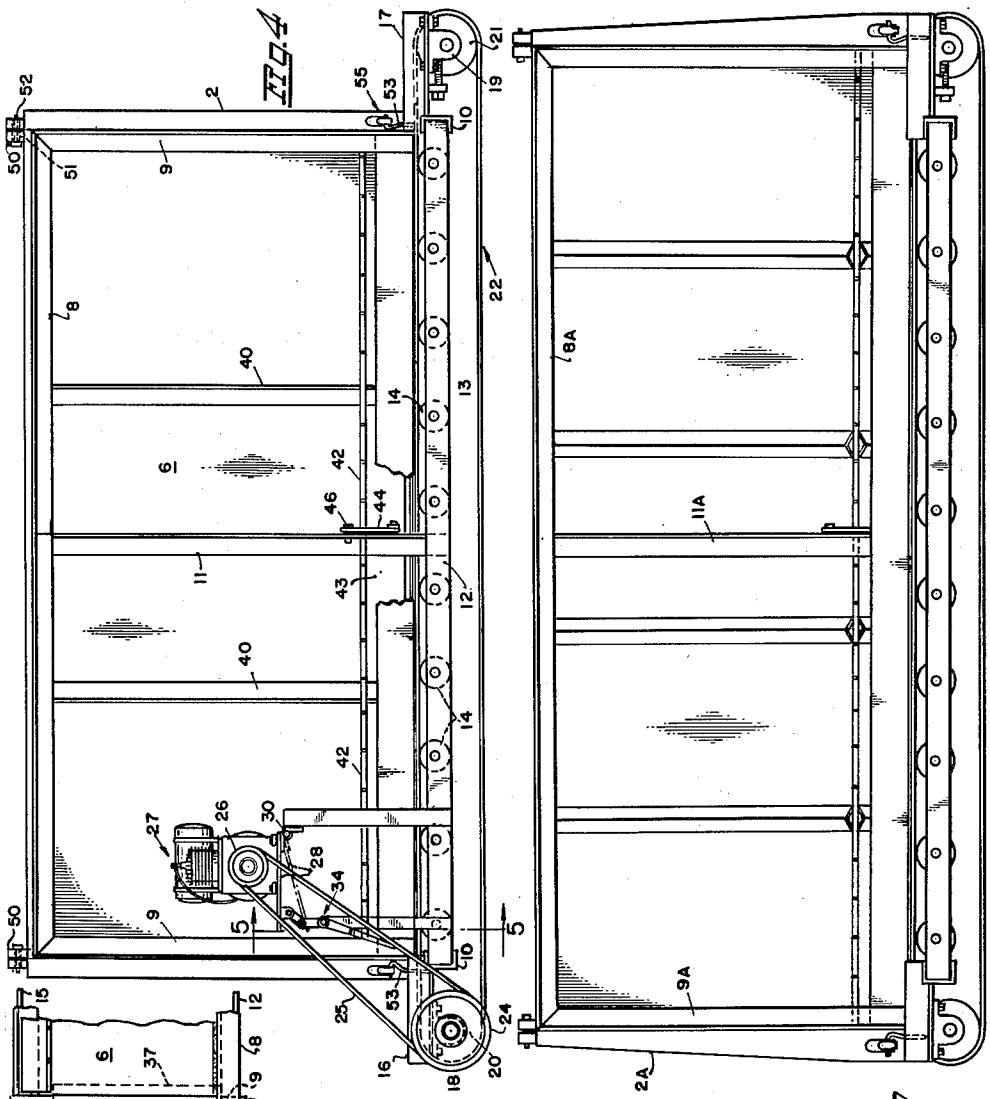


FIG. 10

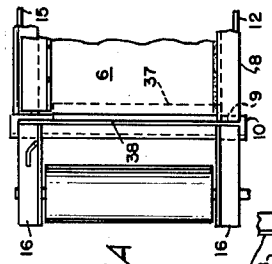


FIG. 4A

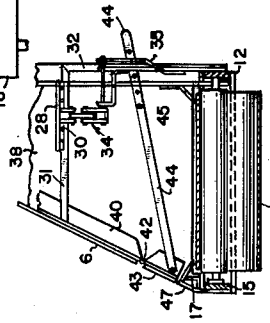


FIG. 5

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Original Filed April 3, 1958 3 Sheets-Sheet 3

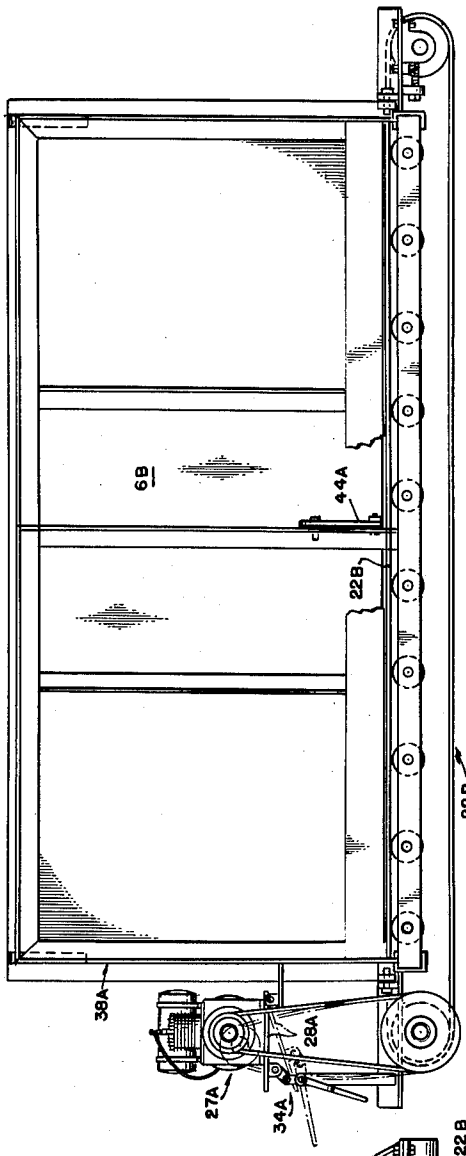


FIG. 6

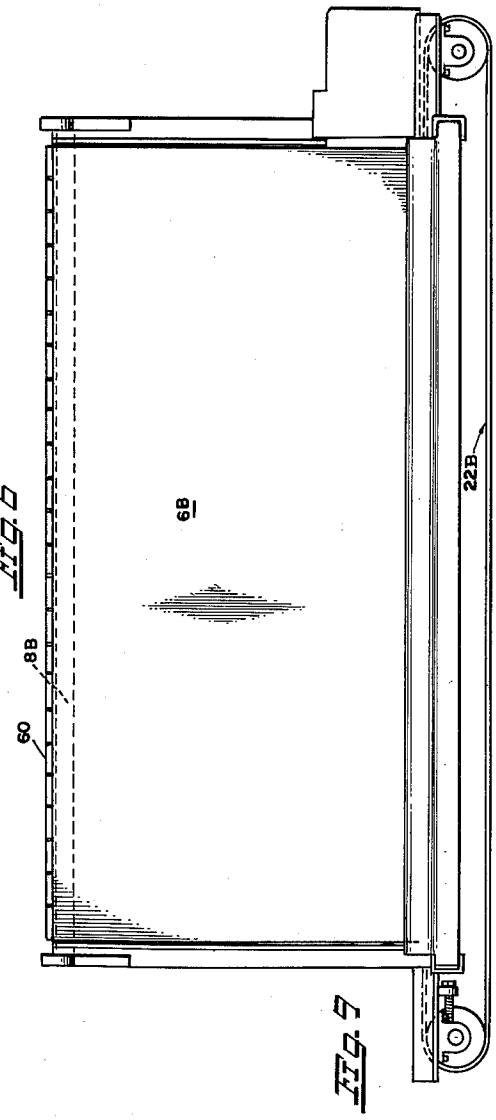


FIG. 8

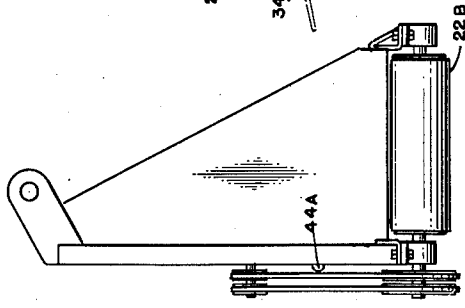


FIG. 7

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United States Patent Office 3,018,908
Patented Jan. 30, 1962

3,018,908
CONVEYOR FOR DISPENSING CONTENTS OF DUMP TRUCKS

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Substituted for abandoned application Ser. No. 726,224, Apr. 3, 1958. This application Jan. 21, 1959, Ser. No. 788,234

1 Claim. (Cl. 214—508)

This invention relates to dump trucks and more particularly to an attachment for the bodies of dump trucks for distributing sand, gravel, dirt and similar substances.

This application is a substitute for our abandoned application, Serial No. 726,224, filed April 3, 1958.

Our invention further comprehends certain auxiliary mechanism closely associated with the use of such dump trucks for the purpose of improving the general efficiency of the same and particularly in dispensing and distributing contents of the body such as gravel, sand and similar substances into and along a pipe trench.

For example, in filling trenches in which coated pipes have been previously laid, first with sand to cover and protect the pipe coating, then with gravel to completely fill the trench, it has been customary to dump the filling material in piles at intervals along one side of the trench, then shoveling the material into the trench by slow and expensive hand labor.

Accordingly, it is one of the principal objects of the invention to provide an attachment to replace the standard tail-gate of a dumping body with a conveyor mechanism including a replacement tail-gate normally closing off the rear of the dump body but releasable therefrom along its bottom edge to thereby regulate the flow of the body contents onto the conveyor and directly into the trench as the truck travels along one side thereof. The conveyor is driven by a prime mover independent of the truck engine and when once set in motion needs no further attention on the part of the operator other than to coordinate the forward movement of the truck with the progressive filling of the trench to the proper level.

The foregoing and other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompnying drawing forming a part hereof, and in which:

FIGURE 1 is a side elevational view of a truck having a dumping body provided with a dispensing conveyor made in accordance with our invention.

FIGURES 2 and 3 are fragmentary views similar to FIGURE 1 illustrating two operative stages of the invention.

FIGURE 4 is an elevational rear view on an enlarged scale of the invention attached to the rear of the dumping body in an operative position.

FIGURE 4A is a fragmentary top plan view of one end of FIGURE 4 and typical of both ends thereof.

FIGURE 5 is an end view of FIGURE 4 taken along the line 5—5 thereof with some parts omitted.

FIGURE 6 is a view similar to FIGURE 4 showing a modified form of the invention.

FIGURE 7 is a view of the righthand end of FIGURE 6.

FIGURE 8 is a view on an enlarged scale of the left-hand end of FIGURE 6.

FIGURE 9 is a rear view of FIGURE 6 with parts omitted.

FIGURE 10 is a modification of FIGURE 4 with parts omitted.

With continuing reference to the drawings, wherein

like reference numerals designate like parts, numeral 1 indicates generally a dumping truck or similar vehicle of any standard construction and having a dumping body 2 swingable vertically by a conventional hoisting mechanism 3 about an axis 4 supported on the rear end of the chassis frame 5, the vehicle or the like being of the motor driven type in this instance.

With particular reference to FIGURES 4 and 4A, the top edge of a replacement tail-gate 6 is permanently secured to a horizontal top member 8 supported by vertical end members 9 whose bottom ends are secured to transverse channel members 10. An intermediate vertical member 11 is secured at its top end to the member 8 and at its bottom end to the outside rail 12 of a roll frame 13 supporting conveyor rolls 14. The ends of both rails 12 and 15 of the roll frame are secured to the channel members 10. Also secured to the channel members and extending laterally therefrom are two pairs of parallel arms 16 and 17 to whose underside are rotatably mounted by suitable bearing blocks 18 and 19 end rolls 20 and 21 supporting an endless conveyor belt 22.

The end roll 20 is provided with a pulley 24 driven by a belt 25 entrained over a power take-off pulley 26 of an internal combustion engine 27 mounted upon a platform 28 hingedly attached at its inner edge as at 30 to a cross member 31 supported by the top end of a vertical member 32 whose bottom end is secured to the outside rail 12 of the roll frame 13. The outer edge of the platform 28 is provided with an over-center locking mechanism indicated generally at 34 and provided with an actuating lever 35 for locking the platform and engine in a belt-tight position as shown or for lowering the platform into the broken line position to slacken the belt for engine idling or starting operations.

The ends of the replacement tail-gate 6 are provided with stiffening members 37 secured to vertical end plates 38 recessed at their bottom end to straddle the top run of the conveyor belt 22 and secured at their bottom corners to the channel members 10. Additional stiffening members 40 are secured to the tail-gate intermediate its ends as shown. It will be noted that the engine is mounted inboard of the end plate 38 and protected by it as well as by the upright members 9 and 11.

Coextensive with the width of the tail-gate 6 and hingedly attached as at 42 to the bottom edge thereof is a gate 43, controlled by a handle 44 and lockable thereby in the closed position shown in FIGURE 5. For locking the gate in a closed position or in any degree of opening, the handle is provided with a series of apertures 45 selectively engageable with a pin 46 extending through one flange of the vertical member 11. The bottom edge of the gate when in a closed position is in near contact with the ridge of an apron 47 secured to the inside rail 15 of the roll frame 13 throughout the length thereof and extended inwardly therefrom to overlie the corresponding marginal edge of the top run of the conveyor belt 22. Overlying the opposite edge of the conveyor belt is a baffle plate 49 secured to the vertical members 9 and 11.

The assembly thus far described is hingedly attached at its top corners to the top rear corners of the dump body 2 by means of arms 50 secured to the end vertical members 9 and 10 and provided with an opening 51 for engagement with pins 52 carried by the dump body. The bottom forward end of the assembly is releasably secured to the bottom rear corners of the dump body by means of hook members 53 secured to the inner arms 16—17 and adapted for locked engagement with the conventional tail-gate latching mechanism 55 operable by a hand lever 56 at the forward end of the dump body. When so locked the replacement tail-gate 6 serves its

purpose of closing off the open rear end of the dump body for transporting loads in the normal manner as illustrated in FIGURE 1.

Upon arriving at the side of one end of a trench to be filled, the dump body is tilted rearwardly into a dumping position shown in FIGURE 3 by the tilting mechanism above referred to. This arranges the conveyor belt parallel with the ground level and in position to start the dispensing and distributing operation. This is accomplished by starting the engine **27** and swinging it upwardly by its platform **28** to tighten the belt **25**, then releasing the gate handle **44** to allow the gate **43** to swing open to a desired degree then re-locking it. The degree to which the gate is opened will, of course, determine the volumetric flow of the dump body contents onto the top run of the conveyor belt which while running to the left as viewed in FIGURE 6 will discharge the contents on the driver's side of the truck in his reflected line of vision from the rear view mirror. This enables the driver to coordinate the forward movement of the truck with the progressive filling of the trench to the proper level.

In the modification shown in FIGURE 10 the structural elements such as the horiozntal top member **8A**, vertical members **9A** and **11A**, and the conveyor **22A** and engine mounting (not shown) are the same as those described in connection with FIGURE 4 but the width of the tail-gate **6A** is greater to match that of the wider dump bodies indicated at **2A**.

In the further modification shown in FIGURES 6–9 the structural elements and conveyor are the same as those above mentioned. However, the engine **27A**, its supporting platform **28A** and over-center locking mechanism **34A** are located exteriorly of the end plate **38A**. The replacement tail-gate **6B** instead of being provided with a swingable gate portion, as at **43** in FIGURE 4, is swingable in its entirety from its hinged attachment **60** to the horizontal top member **8B**. The bottom end of the tail-gate **6B** is provided with a selectively lockable handle **44A** for the same purpose as the handle **44** in FIGURES 4 and 5, namely, to lock the tail-gate in any desired open position to thereby regulate the amount and flow of dump body contents onto the top run of the conveyor belt **22B**.

The normal dumping function of the dump body is not interfered with when equipped with our invention since either form thereof will, under the influence of gravity, assume the approximate position shown in FIGURE 2 when released at its bottom corners from the bottom corners of the dump body upon manipulation of the latch-releasing lever **56**.

From the foregoing it will be apparent that we have provided an attachment for a dump truck body which is easy to install on all standard makes, is highly efficient, durable and positive in its operation and one which will not in any way interfere with the normal operation or function of the body or of the truck to which the invention is applied.

While we have shown particular forms of embodiment of our invention we are aware that many minor changes therein will readily suggest themselves to others skilled in the art without departing from the spirit and scope of the invention. Having thus described our invention what we claim as new and desire to protect by Letters Patent is:

In a vehicle having a dumping body with parallel vertical side walls and means for elevating the forward end of the body to dump the load at the rear; the improvement comprising a replacement tailgate for said body, said tailgate comprising a frame and backing plate integrated therewith, a supporting member secured to each bottom corner of said frame and extending rearwardly therefrom, means swingably mounting the frame to the top rear corners of said side walls of the truck body, means carried by each bottom corner of said frame for removably securing the same to the corresponding corners of said side walls of the truck body, whereby, upon release of said bottom corner securing means, said tailgate will gravitationaly maintain a substantially vertical position as the truck body is elevated to said dumping position to thereby not interfere with normal dumping operations, a gate hingedly attached to the bottom edge of said plate, a roll frame comprising an outer rail and an inner rail and rollers supported therebetween, said roll frame secured to and supported by said supporting members, a driven roller and an idling roller carried by said supporting members at opposite ends thereof, an endless belt entrained over said driven and idling rollers, the top run of the belt supported by said rollers of the roll frame, a downwardly and rearwardly extending strut member secured at its top end to the top of said tailgate frame and secured at its bottom end to the outer rail of said roll frame, a hand lever pivotally attached at its forward end to said gate and provided at its opposite end with spaced apart detent means for selective engagement with said strut to thereby maintain said gate in a closed position relative to said backing plate or in various selective degrees of opening relative to the plate whereby to regulate the flow of material from the elevated truck body when said tailgate is secured to said truck body, a vertical frame carried by said roll frame, a platform hingedly attached at one of its ends to said vertical frame, means at the opposite end of said platform for locking the same in a horizontal position relative to said frame, a prime mover mounted upon said platform and provided with a driving pulley, a belt entrained over said driving pulley and operatively connected to said driven pulley whereby the prime mover may be lowered from a belt-tight operative position to a belt-slack inoperative position for engine idling or starting operations.

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