March 8, 1955 W. H. WYLIE 2,703,704

COMBINED PUGMILL AND TAIL GATE FOR TRUCK BODIES

Filed Aug. 12, 1953 3 Sheets-Sheet 1

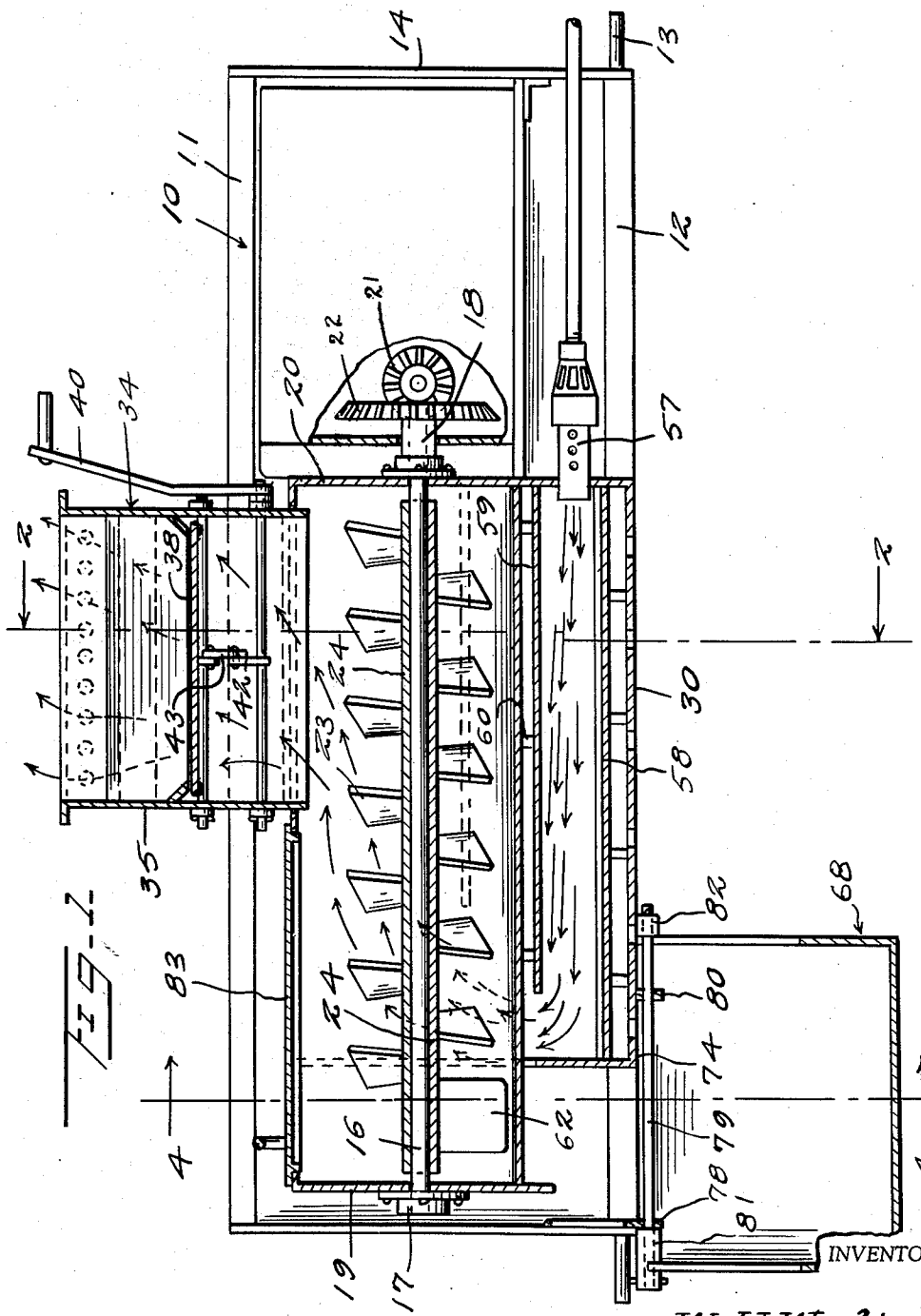


FIG. 1

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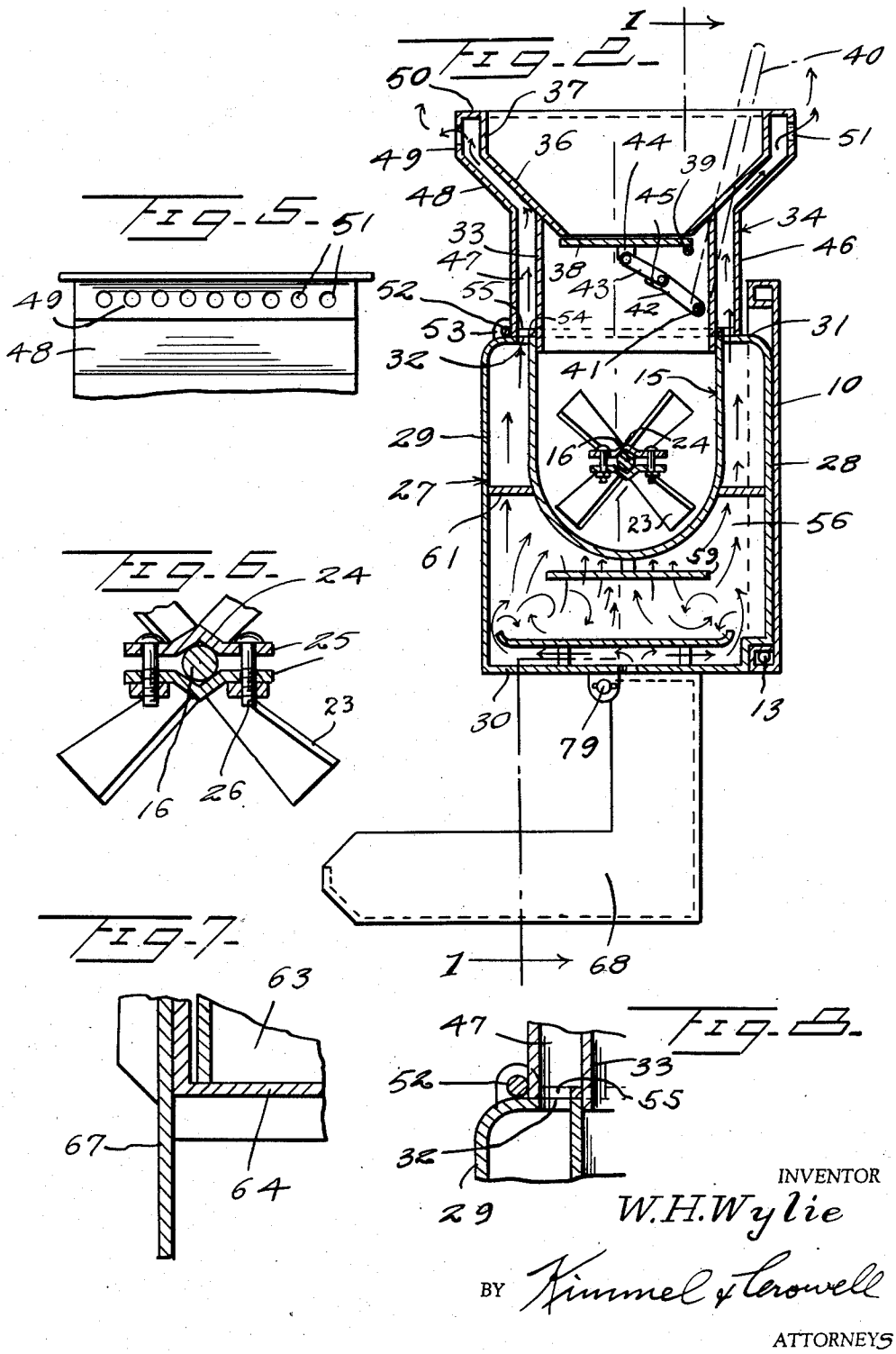
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3 Sheets-Sheet 2



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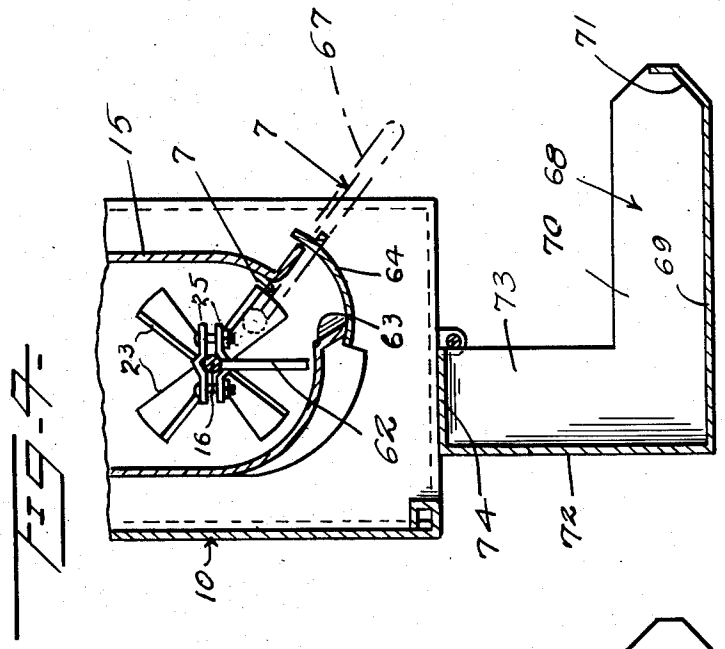


Fig. 4.

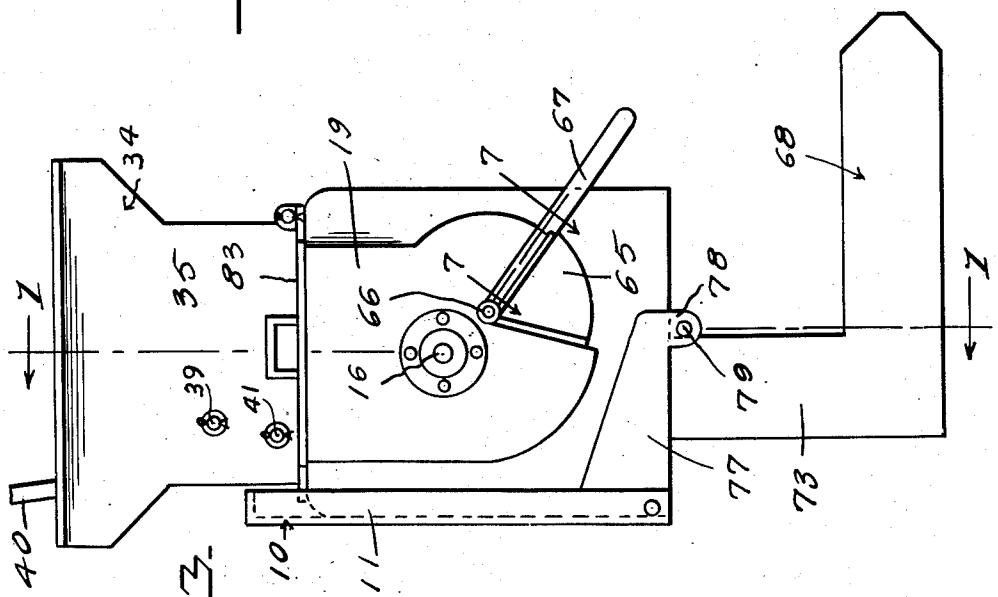


Fig. 3.

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COMBINED PUGMILL AND TAIL GATE FOR TRUCK BODIES

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Application August 12, 1953, Serial No. 373,827

1 Claim. (Cl. 259—157)

This invention relates to a combined pugmill and tailgate for hopper or truck bodies.

In the patching of roads with tar or asphalt mixes, generally consisting of various amounts of asphalt, sand and gravel or cinders, it is desirable that the mixture be heated and mixed to a point where it becomes pliable, so that the material may be spread out on the road, and also being hot will have a bonding effect to the road surface. It is an object of this invention to provide a combined pugmill and tailgate for mounting on the rear of a truck or hopper body so that the road patching material may be heated and thereby made pliable.

A great many county and State highway maintenance departments prepare their road and street patching material by spreading a mixture of sand and gravel along the right-of-way, and spraying hot liquid asphalt on top of the above material. Immediately after the asphalt is sprayed on the sand and gravel it is turned and mixed over and over many times with a motor patrol or grader by turning or rolling the material with the blade of the machine. After the proper proportion of asphalt has been added, and the material turned and mixed sufficiently, it is stockpiled in what is termed "windrows," and left until the mixture is needed for patching.

It may be weeks and even months before the above mixed material is to be used, and in most cases the asphalt has settled down in the stockpile and has become separated from the sand and gravel. The mixture has also long since lost its original heat and has become a cold mixture, and unsuitable for a good patching material.

It is at this point that the pugmill and tailgate unit to be hereinafter described becomes effective so as to reheat and remix the blade-mixed patching material, and to bring it back to the hot, pliable and workable state necessary for proper patching.

Another object of this invention is to provide an improved pugmill wherein the material may be in a continuous operation from one end of the device for discharge onto the road, or may be delivered to a pan or receiver suspended from the discharge end of the mill.

A further object of this invention is to provide an improved conveyor in a pugmill for moving the material toward the discharge end of the device.

With the above and other objects in view, my invention consists in the arrangement, combination and details of construction disclosed in the drawings and specification, and then more particularly pointed out in the appended claim.

In the drawings:

Figure 1 is a longitudinal section taken on the line 1—1 of either Figure 2 or 3, showing a combined pugmill and tailgate constructed according to an embodiment of this invention.

Figure 2 is a sectional view taken on the line 2—2 of Figure 1.

Figure 3 is a detailed end elevation of the device.

Figure 4 is a fragmentary sectional view taken on the line 4—4 of Figure 1.

Figure 5 is a fragmentary side elevation of the charging hopper.

Figure 6 is a fragmentary transverse section through the conveyor.

Figure 7 is a fragmentary sectional view taken on the line 7—7 of either Figure 3 or 4.

Figure 8 is a fragmentary sectional view, on an enlarged scale, showing the connection between the hopper and the conveyor structure.

Referring to the drawings, the numeral 10 designates generally a rectangular plate which forms a tailgate for a truck or hopper body. The plate 10 has disposed at the upper and lower portions thereof, tubular or angular reinforcing means 11 and 12 respectively, and a pair of studs 13 extend from the lower tubular member 12 and from opposite end flanges 14 which are carried by the plate 10. A substantially U-shaped conveyor housing or trough 15 is disposed rearwardly of the plate 10 and housing 15 has journalled lengthwise thereof, a conveyor shaft 16.

The shaft 16 is journalled in bearings 17 and 18 carried by the end walls 19 and 20 of the housing or trough 15. The shaft 16 is adapted to be rotated by a driving means 21 in the form of a driving gear meshing with a driven gear 22 fixed to shaft 16. Shaft 16 has secured thereabout a conveyor means comprising a plurality of blades 23 which are fixed to elongated angle bars 24.

The angle bars 24 have extending laterally therefrom ears 25 and fastening members or bolts 26 engage through the ears 25 so as to tightly clamp the angle members 24 about the shaft 16. A jacket generally indicated at 27 engages about the conveyor housing 15 and is formed of a forward wall 28, a rear wall 29, a bottom wall 30 and a top wall 31 is formed with a plurality of openings 32 adjacent the vertical sides of the conveyor housing 15 so that heated air, as will be hereinafter described, will flow upwardly into contact with the vertical walls of the conveyor housing 15 and the vertical side walls 33 of a charging hopper generally indicated at 34.

The charging hopper 34 is formed of side walls 33, end walls 34 and upwardly and outwardly directed walls 36 with which vertical upper walls 37 connect. The inclined walls 36 terminate below the upper ends of the side walls 33 and form a valve seat against which a valve plate 38 is adapted to engage. The valve plate 38 is pivoted as at 39 between the end walls 35, and valve plate 38 is rocked downwardly and forwardly to opening position by means of a crank handle or lever 40 secured to a horizontal shaft 41.

Shaft 41 has fixed thereto, a link 42 which is pivotally connected with link 43 and link 43 is pivotally connected to an ear 44 secured to the lower side of the valve plate 38.

Link 42 is provided with a stop lug 45 as shown in Figure 2, which will limit the upward swinging of the two links 42 and 43 slightly past the aligned position of these links so that when valve plate 38 is in closed position the links 42 and 43 will be in a locked position.

The charging hopper 34 also includes outer vertical walls 46 spaced from the inner walls 33 forming a passage 47 through which the heated air is adapted to flow. The jacket walls 46 are connected with divergent jacket walls 48 and walls 48 have extending upwardly therefrom, vertical walls 49 which are connected to a top wall 50. The vertical walls 49 are provided with discharge ports 51 through which the heated air is adapted to be exhausted. The charging hopper 34 is removably mounted on the conveyor housing 15 by means of a removable hinge pin 52 engaging through ears 53 carried by the top wall 31.

Inner hopper walls 33 as shown in Figure 2, telescope downwardly a short distance into conveyor housing 15 so as to form a tight connection between hopper 34 and conveyor housing 15. Hopper 34 is also formed with a bottom wall 54 disposed between wall 33 and wall 46 and bottom wall 54 is formed with openings 55 which register with openings 32.

The space 56 about conveyor housing 15 within jacket 27 is adapted to be heated by means of a burner 57 which extends through end wall 20.

A baffle plate 58 is secured to bottom wall 30 of jacket 27 and a horizontal baffle 59 is suspended by suspension means 60 from the bottom of housing 15. The heat and products of combustion emanating from the burner 57 are adapted to flow forwardly over the forward end of baffle 59 and also over the forward ends of a pair of baffle plates 61 which are secured between housing 15 and housing 27 as shown in Figure 2. The forward

end of the conveyor has fixed thereto, a discharge blade **62** which is secured to one of the angle members **24** and is positioned within the discharge end of the housing **15**. The housing **15** has a discharge port **63** formed at its discharge end and a curved valve plate **64** is adapted to close or open the discharge port **63**.

Valve plate **64** has fixed thereto, a sector shaped plate **65** which is pivoted on a fixed stud **66** carried by end wall **19**. An operating lever or handle **67** is secured to sector plate **65** and projects laterally outwardly for movement upwardly to a valve opening position.

Where it is desired to use the material such as tar or asphalt mixture for small patches in a road, the heated and substantially mixed material is discharged from port **63** into a pan **68** which is suspended below the pugmill. The pan **68** includes a bottom wall **69**, opposite side wall **70** with an upwardly directed forward wall **71** and a vertical rear wall **72**. The rear wall **72** has fixed to the opposite vertical edges thereof, side walls **73** and a top wall **74** is fixed to the rear wall **72** and the side walls **73**.

A bracket **77** extends from the tailgate **10** and is formed with a depending ear **78** through which a pan supporting shaft **79** is adapted to removably engage.

An ear **80** extends from bottom wall **30** with shaft or pin **79** engaging through ear **80**. A bushing **81** is formed at the forward end of top wall **74** at one end thereof and a second bushing **42** is formed at the opposite end of top wall **74**. A cover plate **83** engages over the top of housing **15** forwardly or to the left of charging hopper **34**. Plate **83** is removable so that the interior of housing **15** may be readily cleaned.

In the use and operation of this pugmill, the device is secured by means of the studs **13** to the rear of a truck or hopper body. Burner **57** is connected with a suitable source of fuel supply and drive member **21** is operated from a suitable power means. The tar or asphalt material is discharged into the charging hopper **34** and may be retained in this hopper for a short time until the material is in a substantially pliable state.

At this time plate **38** will be in a closed position. When the material is in a substantially fluid or liquid state, lever **40** is rocked forwardly as viewed in Figure 1 so as to swing valve plate **38** downwardly to an open and hopper discharging position. The material dropping into conveyor housing **15** will be moved therealong and will be additionally heated from the heat about housing **15**. When the material reaches the left end of conveyor housing **15**, delivery blade **62** will push the material outwardly or rearwardly through delivery port **63**.

If the material is to be used by patching small holes in a road, receiver or pan **68** will be disposed below delivery port **63**.

If the material is being discharged in a long trench, pan **68** is removed by pulling out suspension pin or shaft **79**. The material will then drop directly downwardly from delivery port **63** into the trench.

The device hereinbefore described will provide a convenient means whereby the road patching material can be maintained in a fluid state up to the time of delivery of the material onto the road. This device will thereby save a considerable amount of lost time in initially heating the material and then placing the material in a truck body for removal from the body onto the road.

The purpose of the hopper is to act as a charging chute, as the material is shoveled from the truck body into the pugmill unit. The hopper is equipped with a toggle controlled or operated gate, which retains the material in the hopper until it is to be dumped into the pugmill below. The hopper is double walled and the hot gases from the burner pass upward through the walls, and thus preheat the material to some degree prior to its being released into the pugmill. The material, sand, gravel and asphalt, after passing through the cycle of heating and mixing in the pugmill, reaches a hot pliable state, so that the material may be readily spread out on the road, and so that the material will adhere to the road.

The pugmill and tailgate unit herein disclosed, may also be used as a mixer for producing asphalt patch material, by charging the sand and gravel into the pugmill and adding asphalt with a ladle or bucket.

What is claimed is:

A combined pugmill and tailgate comprising a rectangular tailgate, a pair of laterally projecting studs carried by the opposite ends of said tailgate for mounting said tailgate on the rear of a truck body, a conveyor housing fixed to the rear side of said tailgate, a conveyor in said housing, a charging hopper on the top of said housing, a valve regulating the discharge of material from said hopper to said housing, a discharge blade fixed to the discharge end of said conveyor and disposed in a plane parallel to the longitudinal axis of said conveyor, a delivery valve carried by said housing, and means heating the material in said housing and said hopper.

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