

June 10, 1952

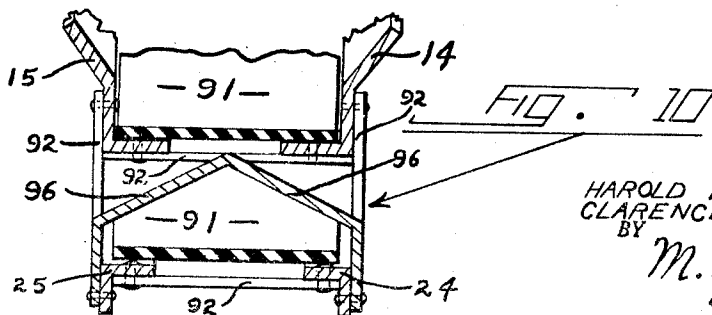
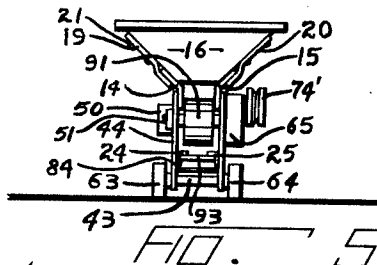
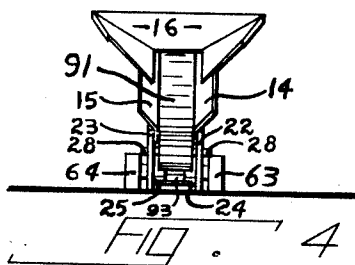
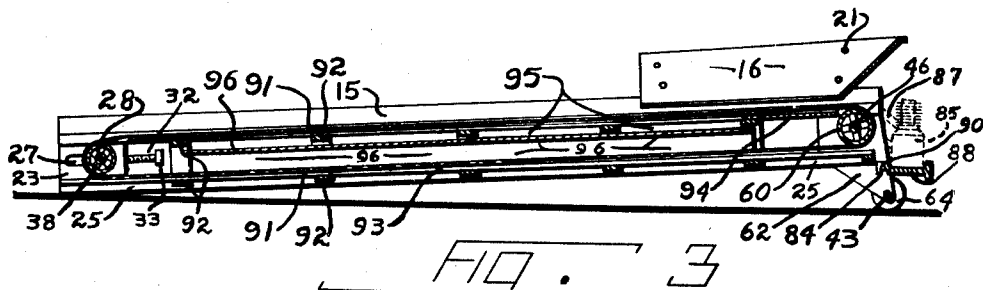
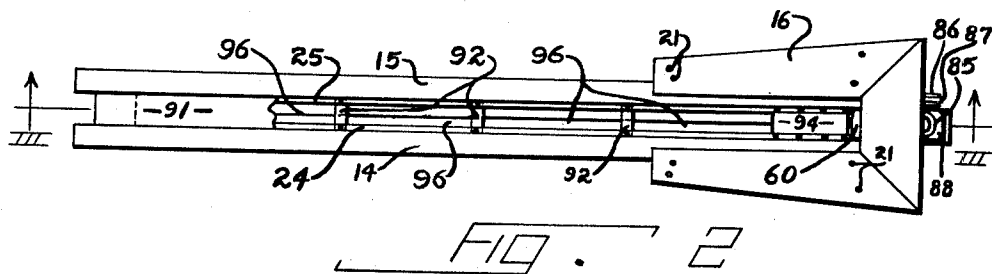
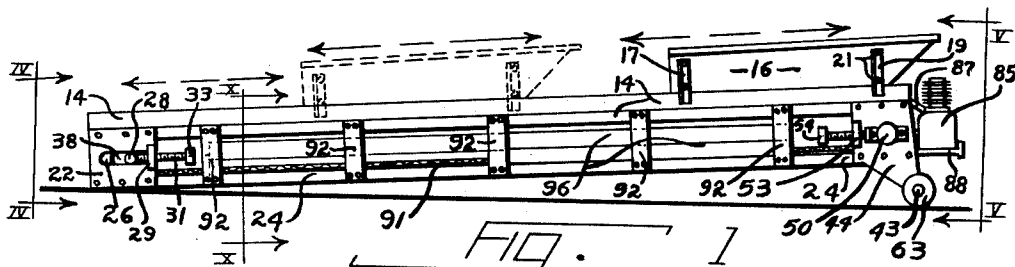
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2,599,659

PORTABLE POWER-DRIVEN COAL CONVEYER

Filed June 23, 1948

2 SHEETS--SHEET 1



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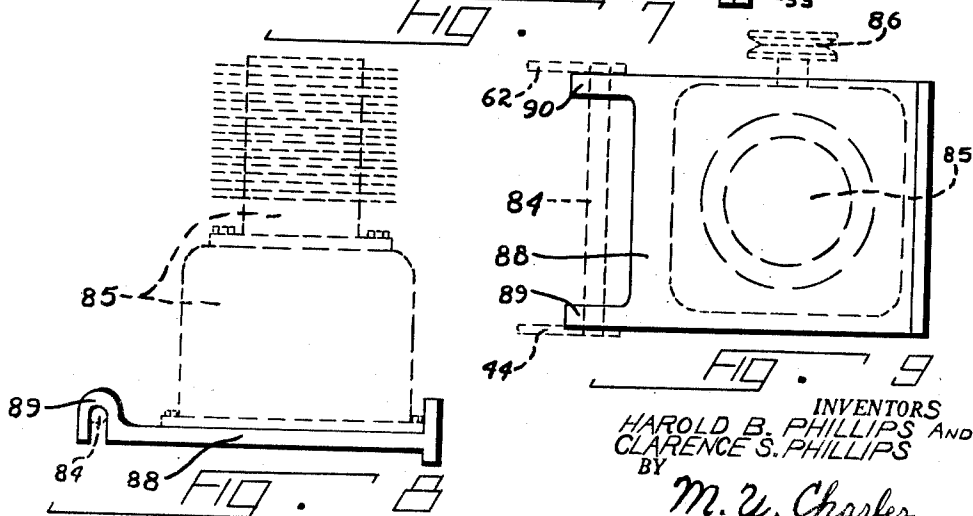
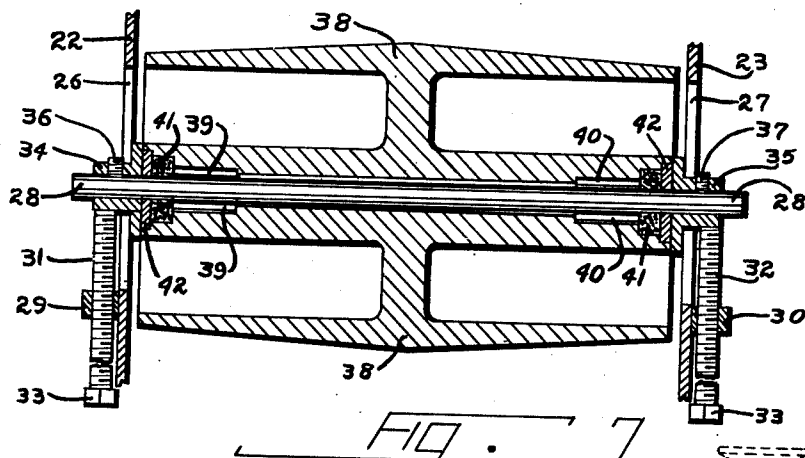
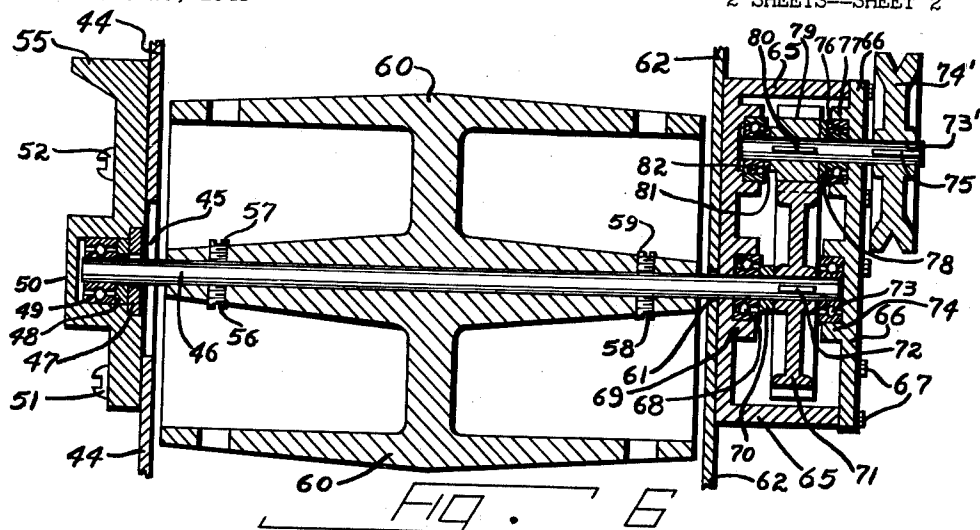
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PORTABLE POWER-DRIVEN COAL CONVEYER

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2 SHEETS—SHEET 2



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PORTABLE POWER-DRIVEN COAL
CONVEYERHarold B. Phillips, Wichita, Kans., and
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Application June 23, 1948, Serial No. 34,648

2 Claims. (Cl. 198—57)

1

Our invention relates to an improvement in a device for the conveyance of coal from a truck to the basement of a building or other place of deposit.

The object of our invention is a device of the kind mentioned that has wheels located on one end of the device for the purpose of moving the device easily from one place to the other and the wheel end of the device is raised to a higher point than the other end which in turn helps in the conveyance of the coal into the bin.

A further object of our invention is a device of the kind mentioned that has a movable hopper element located on the top. This hopper element can be adjusted in any position to accommodate the truck to be unloaded, and this saves time in unloading.

A still further object of our invention is a device of the kind mentioned that has a self contained power unit to drive the conveyor belt. This power unit can be removed by merely lifting up and away from the device. The power unit is so light in weight that one man can easily remove or install it.

A still further object of our invention is a device of the kind mentioned that has a number of adjustments on the conveyor belt for tightening or loosening as the need arises.

A still further object of our invention is to provide a device of the kind mentioned that is made of aluminum and is so light in weight that one man can easily move it around and is simple and durable in construction, comparatively cheap to build, and long lived. This conveyor will also move a large amount of coal in a very short space of time.

A still further object of our invention is to provide a device of the kind mentioned, one end of which is extensible through a window to direct the flow of coal directly into the desired place.

Now referring to the accompanying drawings in which similar numerals of reference designate the same parts throughout the several figures of the drawings: Fig. 1 is a side view of the coal conveyor device. In this view the hopper is shown to be movable by the dotted lines and the arrows.

Fig. 2 is a top plan view of the coal conveyor device.

Fig. 3 is a longitudinal sectional view of the coal conveyor device, this view being as seen from the line III—III in Fig. 2 and looking in the direction of the arrows.

Fig. 4 is a front end view of the coal conveyor

2

device, this view being as seen from the line IV—IV in Fig. 1 and looking in the direction of the arrows.

Fig. 5 is a rear end view of the coal conveyor device, the view being as seen from the line V—V in Fig. 1 and looking in the direction of the arrows.

Fig. 6 is an enlarged detail cross sectional view of the rear conveyor belt pulley and the rear box which conveys the power from the power unit to the conveyor belt. This view also shows the supporting bearing element on the opposite end of the pulley driving shaft.

Fig. 7 is an enlarged detail cross sectional view of the front conveyor belt pulley, this view also shows the method of tightening the conveyor belt which is provided.

Fig. 8 is a side view of the removable power unit support, the power unit is shown in dotted lines.

Fig. 9 is a top view of the removable power unit support and shows how the two hook elements hook over the supporting bar. The power unit in this view is also shown in dotted lines.

Fig. 10 is a cross sectional view of the coal conveyor device, this view being as seen from the line X—X in Fig. 1 and looking in the direction of the arrows.

In the drawings the device is seen as having two long angle-shaped elements 14 and 15. Slidably mounted on the upper extending legs of the angle shaped elements 14 and 15 is a hopper element 16. The hopper element 16 is provided with four short angle irons 17, 18, 19 and 20 which are securely fastened to the hopper elements 16 with rivets 21. These four short angle irons 17, 18, 19 and 20 extend down and on the outside of the upper extending legs of the angle shaped elements 14 and 15 and permit the hopper 16 to slide along the top angle elements 14 and 15 to any desired position. Securely fastened to the front lower extending legs of the angle elements 14 and 15 are two plates 22 and 23. The lower ends of these two plates 22 and 23 are securely fastened (preferably riveted) to two long inverted L-shaped elements 24 and 25 which extend the full length of the machine. Located in the approximate center of the two plates 22 and 23 is an elongated slot 26 and 27. The purpose of these slots 26 and 27 is to adjustably receive the ends of a pulley shaft 28. Welded to the front portions of the plates 22 and 23 and directly in line with the slots 26 and 27 are two nuts 29 and 30 which threadedly receive two adjusting screws 31 and 32. One end of

3

these adjusting screws 31 and 32 is provided with a head 33 formed to receive a wrench for tightening or loosening purposes. The other ends of the adjusting screws 31 and 32 contact two hub elements 34 and 35. These two hub elements 34 and 35 fit over the ends of the shaft 28 and are provided with two locking screws 36 and 37. Inside of the hub elements 34 and 35 fit snugly against the inside hub of a pulley 38. The shaft 28 stands still and the pulley 38 revolves around the shaft 28 on two sets of roller bearings 39 and 40. The race for the bearings 39 and 40 are formed in the pulley 38. A packing gland 41 is positioned in front of the bearings 39 and 40 and a retainer ring 42 is positioned in front of the packing gland 41.

At the rear of the machine and securely riveted to the upper angle 14 and extending down to and including the lower inverted L-shaped element 24 and riveted securely thereto and then on down to support the axle 43 is a plate 44. At the center of the plate 44 is located a slot 45 through which a drive shaft 46 extends. The shaft 46 extends through two retaining washers 47 and 48 and on into a conventional ball bearing element 49 that is supported in an adjustable bearing case 50. The adjustable bearing case 50 is held in place by two bolts 51 and 52 mounted on the front portion of the plate 44 and squarely in front of the bearing case 50 is located and securely welded thereto, a nut 53 with a long adjusting screw 54, threaded therethrough one end of the adjusting screw 54 comes into contact with the foot formation 55 that is an integrally formed part of the adjustable bearing case 50.

Securely fastened to the shaft 46 by means of four set screws 56, 57, 58 and 59 is a driving pulley 60. The shaft 46 extends on through a hole 61 in another plate 62 which is securely riveted to the top angle 14 and extends downwardly to and including the lower inverted L-shaped element 24 and is riveted securely thereto and then extends on down to support the other end of the axle 43. The axle 43 supports one on each end thereof, two wheels 63 and 64. Located on the outside of the plate 62 is a gear box 65 which has a removable side 66 which is held in place by bolts 67. The shaft 46 extends into the case 65 and through a conventional ball bearing 68 that is held in place by a bearing socket 69 which is formed as a part of the case 65. The shaft 46 extends on through a spacer 70 and into a gear 71. A half moon key 72 keeps the gear 71 from turning on the shaft 46. The shaft 46 then extends on into a second ball bearing 73 that is held in place by a bearing socket 74 that is an integrally formed part of the removable side plate 66. Up toward the top of the removable side plate 66 is located a V belt pulley 74' that is fastened to the shaft 73' by a half moon key 75. The shaft 73' then extends through the removable side plate 66 and into a ball bearing 76 which is held in a bearing socket 77 which is an integrally formed part of the removable side plate 66. The shaft 73' then extends through a washer or spacer 78 and into another gear 79 that is held in constant mesh with the larger gear 71. The shaft 73' is securely fastened to the gear 79 by a half moon key 80 and then the shaft 73' extends through a second washer or spacer 81, then into a second ball bearing 82 which is held in a bearing socket 83 which is an integrally formed part of the case 65.

Located in the rear of the two side plates 44

4

and 62, directly below and to the rear of the two long inverted L-shaped elements 24 and 25 is positioned a motor support rod 84, one end of which is fastened to the side plate 44 and the other end of the motor support rod 84 is fastened to the side plate 62. The motor 85 is provided with a V belt pulley 86 and a V belt 87 is placed thereon and extends to and around the V belt pulley 74. The motor 85 is mounted on a motor support plate 88. The forward portion of the motor support plate 88 is provided with two hook elements 89 and 90 that easily hook over the motor support rod 84 or easily unhook from the motor support rod 84. The weight of the motor 85 which is mounted on the motor support plate 88 at all times keeps the V belt 87 tight on the two V belt pulleys 86 and 74' by the hinge connection of the hook elements 89 on the support plate 88 which is rigidly held between the two side plates 44 and 62.

Located on both of the sides 14 and 15 under the conveyor belt 91 and also on the bottom is riveted a plurality of rectangular shaped support elements 92. A long strip of metal 93 is welded securely to the under side of the two long inverted L shaped elements 24 and 25. This metal strip 93 is further support for the conveyor belt 91 and also a reinforcement for the entire machine. At the rear of the machine and extending a short distance toward the front and directly in front of the rear drive pulley is a strip of metal 94. This metal strip 94 serves as a rear support for the conveyor belt 91 and also a reinforcement for the rear portion of the machine. Directly in front of the metal strip 94 is located an open space 95. A hood element 96 is located directly under the open space 95. This hood element 96 serves as a dispenser for the coal dust and deflects the dust away from the machine onto the ground or any satisfactory means for catching the dust.

The operation of the device is as follows. The front end of the machine can be raised and the machine towed behind a truck or due to the extreme absence of weight the machine can easily be loaded on a truck and hauled to the work. Upon reaching the work the machine is placed in the desired spot for unloading the coal. Then the forward end of the machine is shoved into the window or coal opening of the building. The motor 85 is then unloaded and the hooks 89 on the motor support bar 88 are hooked on the motor support bar 84. Then the V belt 87 is placed around the two pulleys 86 and 74' and the motor 85 is allowed to support itself. The weight of the motor 85 keeps the belt 87 tight at all times. Then the conveyor belt 91 is checked for tightness. If the conveyor belt 91 is too tight or too loose the required adjustment can easily and quickly be made by the two adjusting screws 31 and 32 which force the two hub elements 34 and 35 away from them and against the pressure of the conveyor belt 91 to tighten or let the hub elements 34 and 35 slip back with the pressure of the conveyor belt 91 to loosen as the case may be. At the rear end of the machine the adjusting bolt 54 may be turned to force the foot 55 of the bearing support element forward or permit it to move rearwardly as the need may be. The purpose of this adjustment is to compel the conveyor belt 91 to run at the proper position on the driving pulley 60. By this we mean, not too close to one side or the other, which would cause excessive wear on the conveyor belt 91. The motor 85 is then started which turns the V belt

5

pulley 86 and drives the V belt 87 which in turn revolves the second V belt pulley 74 and the shaft 73 is revolved within the bearings 76 and 82 to revolve the gear 79 which is in mesh with a second gear 71. As the gear 71 is revolved, the shaft 46 is also revolved in the bearings 49, 68 and 73. As the shaft 46 is revolved, the pulley 60, which is locked onto the shaft 46 by the four set screws 56, 57, 58 and 59 is also revolved to drive the conveyor belt 91 down and around the front pulley 38 which is revolvably mounted on bearings 39 and 40 and the shaft 28 to carry the coal into the bin.

The hopper 16 can be moved in the desired position on the machine for the truck to dump the coal into the coal conveyor.

Now while the device as shown and above described is probably the preferred form of the device, it is to be understood that such modifications of the invention may be employed as lie within the scope of the appended claims without departing from the spirit and intention of the invention.

Now having fully shown and described our invention, what we claim is:

1. In a portable conveyor device of the kind described; the combination of a conveyor frame, an endless belt carried on rollers, said rollers being positioned one at each end of the frame, said frame having a trough formed therein and said belt forming the bottom of the trough, a power unit carried by said frame for driving one of said rollers and belt, said power unit being hookably mountable and demountable on and from the frame for ease of handling the frame, an open bottom hopper, said hopper being longitudinally slidably carried on said frame and over said belt for purposes of discharging its contents on said belt at any selected point along said frame.

6

2. In a portable conveyor device of the kind described; the combination of structure defined in claim 1, said combination of structure being further characterized by having means therein for tightening and loosening the conveyor belt, said means for tightening and loosening the conveyor belt being bearing elements carrying a supporting shaft for one of said rollers, said bearings being slidably carried by said frame and having screw means for moving said bearings to and holding them in adjusted positions, said power unit hookable attachment providing a pivotal mounting for rocking the power unit to tighten the drive belt and to allow for adjusting movements of the said bearing elements.

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