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ATTACHMENT MEANS FOR HOPPER BOXES

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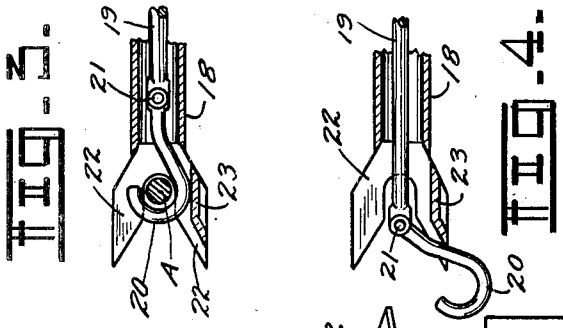


FIG. 3.

FIG. 4.

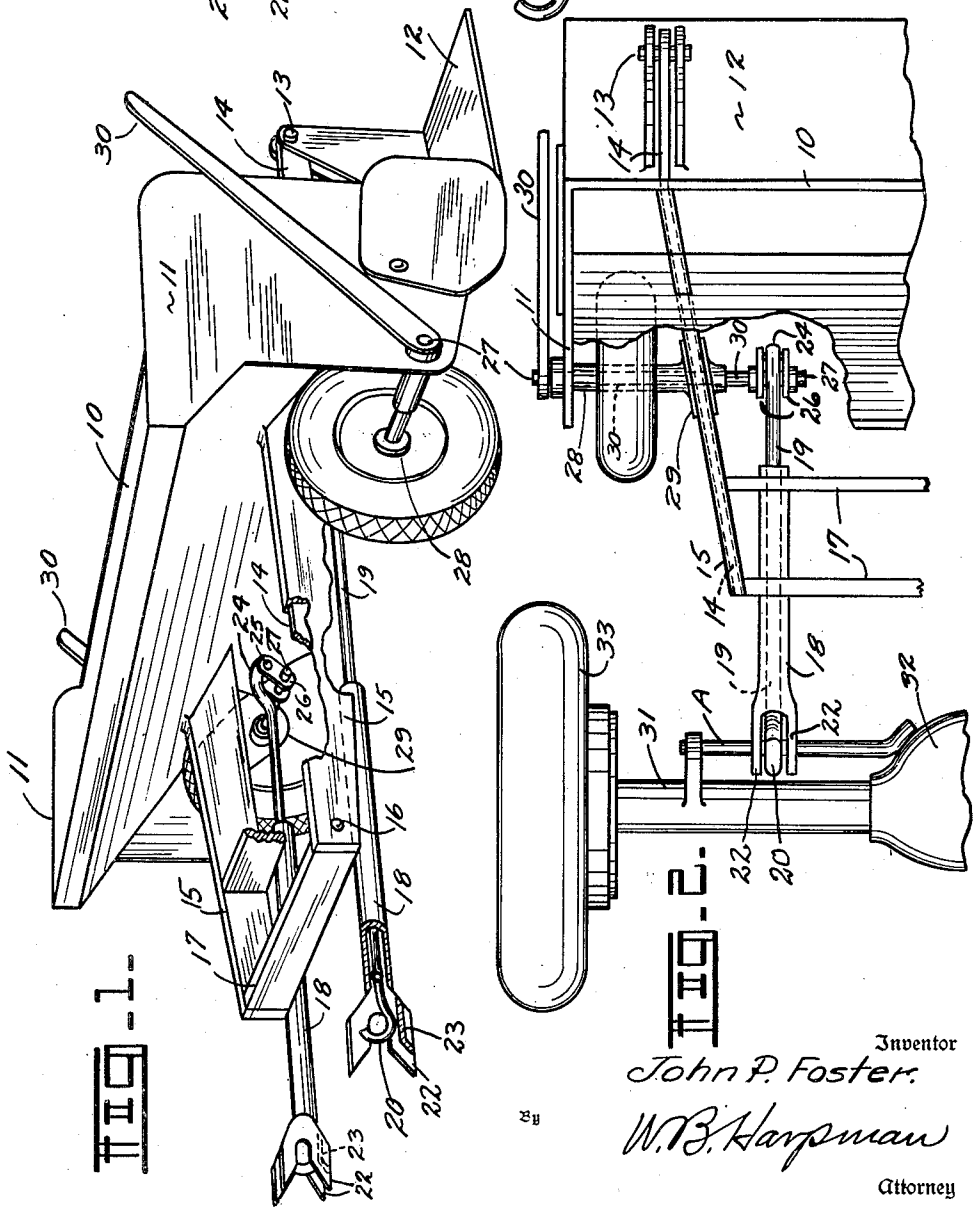


FIG. 1.

FIG. 2.

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ATTACHMENT MEANS FOR HOPPER BOXES

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2 Claims. (Cl. 280—33.44)

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This invention relates to hopper boxes and more particularly to an improved means for attaching a hopper box to a truck or other machine.

The principal object of the invention is the provision of an improved mechanism for operating attachment means on a hopper box.

A further object of the invention is the provision of a hopper box having ground engaging wheels normally supporting a portion of its weight by means of axles and attachment means positioned in the said axles and connected and actuated by handles forming axial extensions on the line of the said axles.

A still further object of the invention is the provision of means for remotely actuating hooks positioned for engagement with a supporting object.

The attachment means for hopper boxes shown and described herein has been designed to form a simple and more efficient mechanism as used with hopper boxes and particularly in attaching and detaching the same from operative engagement with supporting structures on a truck or similar vehicle. It is known that hopper boxes have been devised for the spreading of various paving materials; bituminous, asphaltic and the like as well as gravel, slag and other base materials, and that these hopper boxes, such as that disclosed in the patent to William J. Miller, No. 2,403,820, issued July 9, 1946, are supported and moved in use by detachable engagement with a truck.

In the above mentioned patent, crank actuated means is disclosed for moving dual hook assemblies into and out of operative relationship with a bracket formed on a truck axle. The present invention relates to an improvement in this construction whereby the hopper box and its wheel supporting axle construction is modified to include means for actuating the dual hooks comprising the attachment means.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed can be made within the scope of what is claimed without departing from the spirit of the invention.

The invention is illustrated in the accompanying drawing, wherein:

Figure 1 is a perspective elevation with parts broken away and parts in cross section showing a hopper box with the improved attachment means.

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Figure 2 is a top plan view of a portion of a hopper box with parts broken away and illustrating it in connection with a bracket formed on an axle of a truck, portions of which are broken away.

Figure 3 is an enlarged detailed view of one of the dual hook assemblies illustrated in Figures 1 and 2 and shows the same in closed position.

Figure 4 is an enlarged detailed view of one of the dual hook assemblies illustrated in Figures 1 and 2 and shows the same in open position.

By referring to the drawings and Figures 1 and 2 in particular it will be seen that a hopper box has been disclosed which comprises a hopper 10, the end plates of which are indicated by the numerals 11. The hopper box 10 forms means for receiving paving materials as from a truck and distributing them uniformly as in a paving or re-paving operation, and it includes a screed 12 pivoted as at 13 to floating frame members 14. The floating frame members 14 pass through tunnels positioned across the interior of the hopper box 10 and extend therebeyond and lie within a pair of inverted U-shaped frame members 15. The floating frame members 14 are pivoted as at 16 near the forward ends of the frame members 15.

Cross pieces 17 join the inverted U-shaped frame members 15 and form an integral structure with the hopper 10. Tubular members 18 are affixed in spaced relationship beneath the frame members 15 and 17 and are affixed thereto as by welding and carry arms 19 reciprocally mounted therein. The foremost ends of the arms 19 are bifurcated and attached to hooks 20 as by means of pivots 21.

The hooks 20 are positioned within a pair of spaced V-shaped guides 22 and an inclined cam face 23 serves to space the guides 22 and form means for elevating the hooks 20 when the rods 19 move the hooks 20 into the area between the guides 22. By referring to Figures 3 and 4 of the drawings, enlarged detailed views of this action may be seen, it being observed in Figure 3 that the hook 20 has been moved into position between the guides 22 so that it forms a connection about an attachment bracket A. In Figure 4 of the drawings the hook 20 is shown in open relation, it having been moved outwardly of the space between the guides 20 as by movement of the arm 19 to which it is pivoted.

In order that reciprocal movement may be imparted to the arms 19 for operating the hooks 20, the opposite ends of the arms are provided with curved extensions 24 threadably engaging

the arms 19. The curved extensions 24 are pivoted as by pivots 25 to levers 26 which in turn are affixed to rods 27 disposed within the tubular axles 28 beneath the hopper box 10. The tubular axles 28 are affixed to the hopper box 10 and supported in relation thereto by engagement with the side plates 11 of the hopper box and with depending brackets 29 formed on the frame members 15. Operating handles 30 are affixed one at each end of the rods 27 where they extend out of the tubular axles 28 beyond the side plates 11 of the hopper box. Thus, movement imparted to either one of the handles 30 rotates the rods 27 attached thereto and hence imparts reciprocating movement to the arms 19 thereby causing the hooks 20 to move into or out of the guides 22, depending upon the direction of motion imparted to the handles 30. It will thus be seen that each of the dual hooks 20 is operated by its corresponding handle 30 and further that the operating mechanism is disposed well beneath the hopper box 10 and thereby protected from foreign material which might otherwise interfere with its efficient operation.

In Figure 2 of the drawings a truck axle is indicated by the numeral 31 and it will be observed that the attachment bracket A has been affixed thereto as by welding a bracket portion thereof directly to the axle 31 and by welding the other end of the attachment bracket A to the differential casing in the center of the truck axle. The differential casing is indicated by the numeral 32. A ground engaging wheel carried by the truck axle 31 is indicated by the numeral 33.

It will thus be seen that attachment means for a hopper box has been disclosed which is of simple and efficient construction and which, when employed in combination with the hopper box construction as used in the spreading of various paving materials, expedites the connection of the hopper box with a truck or other vehicle.

Having thus described my invention, what I claim is:

1. In a hopper box including a main frame, tubular frame extensions positioned on said main frame, bifurcated V-shaped guides formed on the forward ends of the said tubular frame extensions, arms positioned in the said tubular frame extensions for reciprocal movement, and hooks pivotally affixed to the outer ends of the said arms and lying between the bifurcated V-shaped guides, hollow axles disposed beneath said hopper box at right angles to said tubular frame extensions, rods disposed in said hollow axles and levers secured to the said rods and pivotally connected to the said arms, and handles affixed to the said rods for imparting partial rotating movement thereto whereby the said arms are moved lonigtudinally of the said tubular frame extensions and the said hooks are moved with respect to the bifurcated V-shaped guides.

2. In a hopper box, means for detachably connecting the said hopper box to a supporting object, said means comprising at least one longitudinally extending frame member affixed to the said hopper box, an arm reciprocally mounted in said tubular frame member, a guide member formed on the foremost end of the said tubular frame member and comprising spaced V-shaped plates, and an inclined cam member positioned between the said V-shaped plates, a hook pivotally affixed to the said arm and engaging the said cam member, a transverse shaft on said hopper box having a handle on one end and a crank on the other end, the said crank pivotally engaging the said arm whereby partial rotating movement imparted to the said shaft by the said handle moves the said crank and imparts longitudinal movement to the said arm and the said hook and thereby moves the said hook with respect to the said cam member into and out of the said guide member.

JOHN P. FOSTER.

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The following references are of record in the file of this patent:

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