

**March 25, 1952**

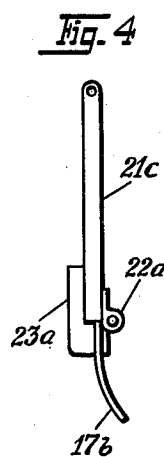
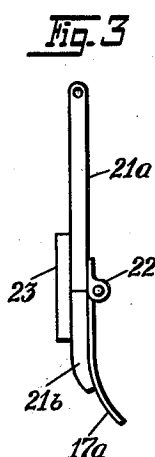
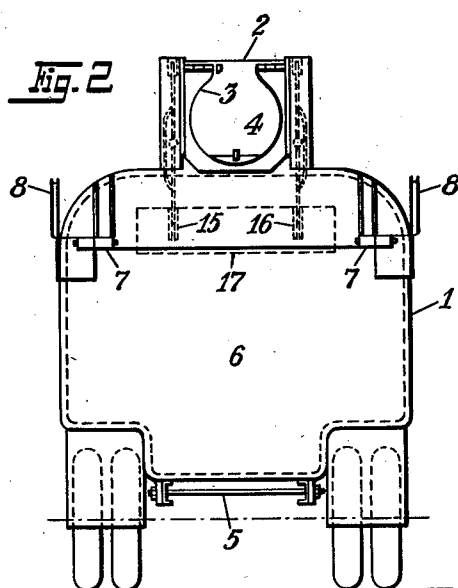
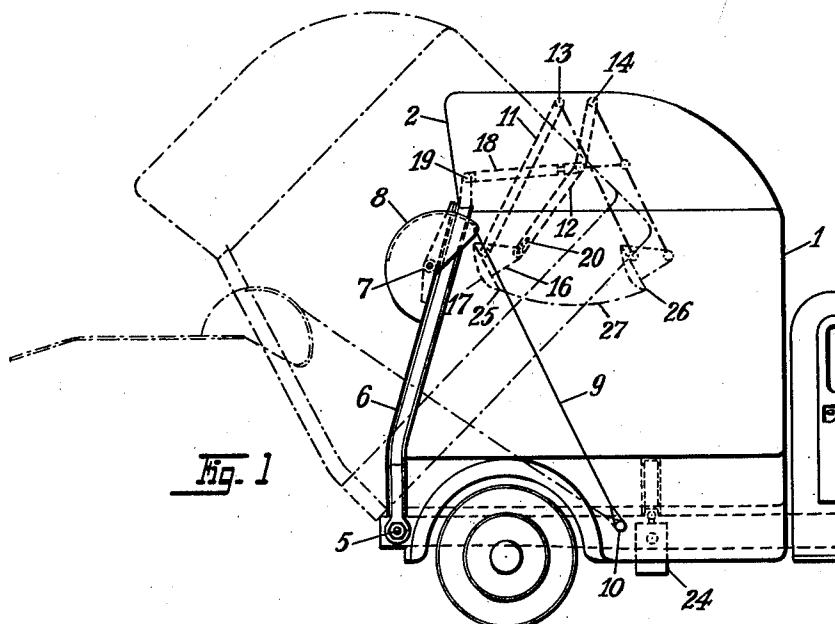
H. LINDE

**2,590,256**

DUST CART

Filed March 18, 1949

2 SHEETS--SHEET 1



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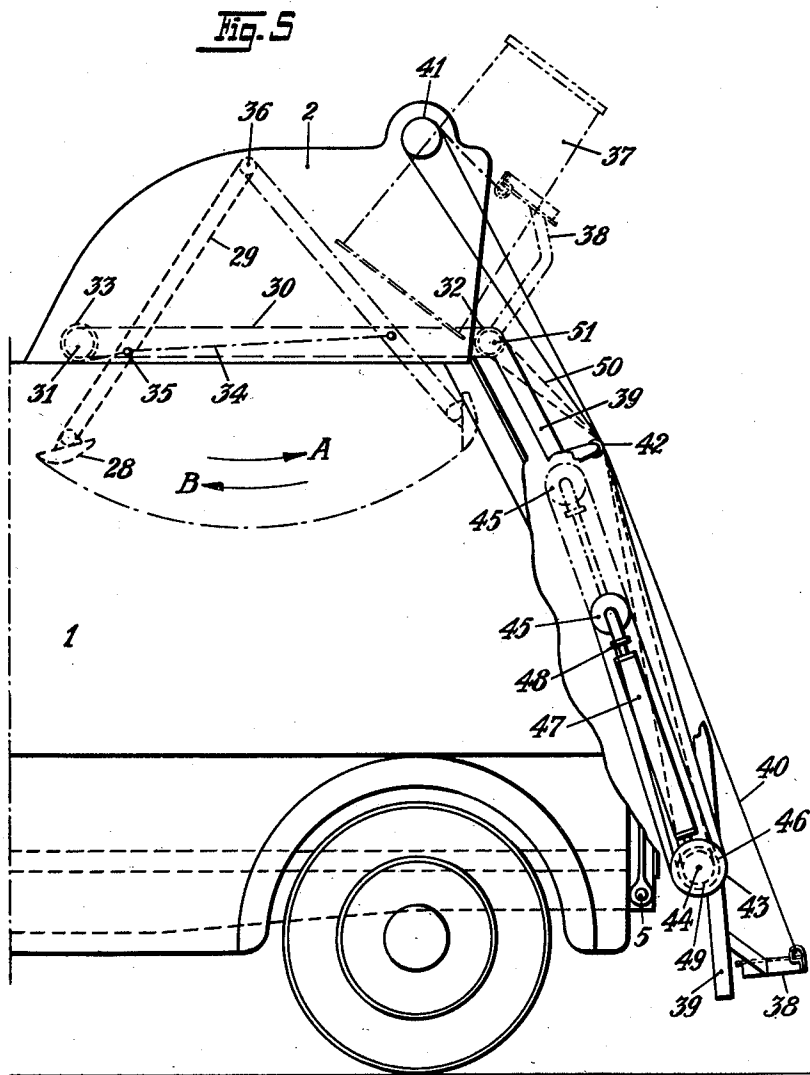
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DUST CART

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2 SHEETS—SHEET 2



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## UNITED STATES PATENT OFFICE

2,590,256

## DUST CART

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Application March 18, 1949, Serial No. 82,097  
In Sweden September 1, 1947

8 Claims. (Cl. 214-67)

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This invention refers to a dust cart having a collecting container and a swingable device for distribution of the load in the collecting container.

When emptying dust bins in transportable collecting containers or dust carts it is of importance that the load be distributed to a certain extent so that the volume of the container is well utilized. This can in certain cases be attained when dust bins are emptied by hand at different points of the edge of an open collecting container. If the container has a considerable height or is made more or less closed, especially for the purpose of dust-free discharge by special means, however, the distribution of the load is not possible in this way. If mechanisms are used for the lifting and emptying of the bins the load is collected at one and the same spot.

One object of the invention is to effectively prevent the bearing means supporting the distributing member from being soiled by the dust emptied into the container.

Another object of the invention is therefore to arrange the distributing member in such a way that no guiding members, bearings or the like are located within the proper container.

Numerous other objects and advantages of the invention will be apparent from the following description taken in connection with the accompanying drawing.

Of the drawings:

Figure 1 is a side view of the main portion of the dust cart according to one embodiment.

Figure 2 is an end view thereof.

Figure 3 is a side view of a detail and

Figure 4 is a side view of a modification.

Figure 5 is a side view of the main portion of a dust cart according to a modified embodiment.

The collecting container 1 is mounted on a chassis and provided with an upper hood 2 in which the dust bins are discharged through an opening 3 which normally is kept closed by a shutter 4. The container is swingably mounted on a shaft 5 and may be discharged by tipping the same rearwardly by means of an hydraulically operating piston 24. The lower portion of the rear gable wall is pivoted at 7 and provided with two segments 8 with a peripheral groove, to which ropes 9 are fastened at one of their ends whereas the other ends are fastened to the chassis at 10. When the container 1 is discharged the container and the gable wall 6 are swung to the position illustrated in Figure 1 by dash and dot lines.

In the hood 2 a pair of arms 11, 12 are hinged

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on each side of the discharge opening 3 at 13, 14 whereas their lower ends are hingedly connected to ears 15, 16 of the distributing member 17. In Figure 1 this member is formed by an obliquely mounted plate, the rear surface of which located opposite to the working surface has a curve-shaped, convex form, in order to facilitate the return movement. A cylinder 18 is hingedly mounted close to each side wall of the hood, and a piston slidable in the cylinder has a piston-rod hingedly connected to the arm 12. By conveying pressure oil by means of a cock alternately to one and the other side of the piston, the arms and the distributing member are caused to perform a swinging movement as illustrated by means of the dash and dot lines, whereas the distributing member performs a parallel motion or another turning motion relative to the arms.

When the dust bins are discharged in the container the arms are resting in their end position 25 as shown to the left in Figure 1. As the content in the container reaches above the dash and dot curve 27, the arms are swung to their other end position 26 whereby the distributing member displaces the upper layer of the load towards the fore wall of the container. The distributing member is thereafter returned to the position 25. The rounded off lower end, therefore may slide over the load without scraping any essential portion of the load back. This may further be prevented, if the ears 15, 16 are journaled in a slot 20 in the arms 12. In order to make it possible for the distributing member to transfer part of the load also to the sides it may be made in the form of a plough or be otherwise suitably shaped.

The embodiment shown in Figures 1 and 2 may be modified in different ways without departing from the principle of the invention. Thus it is possible instead of two pairs of arms to use two single arms as shown in Figures 3 and 4. According to Figure 3 the arm is made in two parts 21a, 21b, which are hingedly connected to each other at 22. The distributing member 17a is connected to the part 21b, which during the working stroke rests against a limit stop 23 fixed to the part 21a. The arm 21c in Figure 4 is at 22a hingedly connected to the distributing member 17b resting against the limit stop 23a. By the hinges 22, 22a the return movement of the distributing member is facilitated.

Instead of two cylinders 18 it is possible to use only one cylinder, if the corresponding arms 12, 21a or 21c are united by a shaft for power transmission, and instead of an hydraulic jack other

means may be provided, such as a handle crank with a mechanical gearing device.

The movement of the distributing member may preferably be made automatic in dependence of the movement of an emptying device. The driving member for the distributing member may thus be operated upon by a device for lifting the dust bin or emptying the bin into the collecting container in such a way that after discharge the distributing member is caused to perform firstly a working stroke and thereafter the return stroke.

A device of this kind is illustrated in Figure 5. The distributing member 23 is carried by two arms 29, the upper ends of which are united with a journal shaft 36 and which normally rest in the end position farthest away from the discharge place. Close to each arm 29 and endless chain 30 is provided on two sprockets 31, 32. On the same shaft as the sprocket 31 is mounted another wheel 33 on which one end of a wire 34 is fastened and partly rolled up. The wire is at 35 connected by its other end to one of the arms 29. When the wheel 33 rotates in clockwise direction, the arms 29 are driven in the direction of the arrow B from the right end position to the left one. For the movement back in the direction of the arrow A a corresponding mechanism may be provided at the other side of the hood 2.

The dust bin 37 is lifted by means of a carriage 38 movable in guides 39. To the carriage 38 is fastened a lift rope 40 extending over a wheel 41, a wheel 43 freely rotatable on a rotatable shaft 44 and a multiple rope pulley block 45, 46 to the point 48. The rope further engages two of a series of guide rollers 42. The pulley block wheels 45 are freely journaled on a piston slidable in an hydraulic jack 47, and the rope 40 is fastened to said piston. When the piston is forced upwards from the position shown by continuous lines to the position denoted by dash and dot lines, the carriage 38 is lifted owing to the gear ratio in the block to the emptying position denoted by dash and dot lines.

One of the block wheels 46 is secured to the shaft 44 and drives the same. On the shaft 44 is further fastened a sprocket 49, which by a chain 50 drives a sprocket wheel 51, the shaft of which drives the chain 30.

From the above it will be clear that the distributing member 23 during the lifting motion of the bin swings in the direction of the arrow A and during the return motion of the bin swings in the direction of the arrow B and thereby displaces the content of the bin to the fore end of the container as well as to the sides thereof if the member is provided with rearwardly directed ends.

I claim:

1. In a dust cart comprising a collecting container and a swingable device for distribution of the upper layer of the load in the container, said swingable device comprising at least two swingable arms being oscillatorily journaled at their upper ends in bearings located above the proper collecting container and passing through an opening at the top of the collecting container and carrying at their lower ends a load distributing member, and said swingable arms being connected with a mechanism for setting said arms with said distributing member in a motion forwards and backwards.

2. In a dust cart comprising a collecting container and a swingable device for distribution of

the upper layer of the load in the container, said swingable device comprising at least two swingable arms being oscillatorily journaled at their upper ends in bearings located in an emptying hood above the proper collecting container and passing through an opening at the top of the collecting container and carrying at their lower ends a load distributing member, and said swingable arms being connected with a mechanism for setting said arms with said distributing member in a motion forwards and backwards.

3. In a dust cart comprising a collecting container and a swingable device for distribution of the upper layer of the load in the container, said swingable device comprising at least two swingable arms being oscillatorily journaled at their upper ends in bearings located above the proper collecting container and passing through an opening at the top of the collecting container and carrying at their lower ends a load distributing member connected with said arms in such a way that it may be swung upwards during the return stroke, and said swingable arms being connected with a mechanism for setting said arms with said distributing member in a motion forwards and backwards.

4. In a dust cart comprising a collecting container and a swingable device for distribution of the upper layer of the load in the container, said swingable device comprising two pairs of arms being oscillatorily journaled at their upper ends in bearings located above the proper collecting container and passing through an opening at the top of the collecting container and being pivotally connected at their lower ends with a load distributing member, and said swingable arms being connected with a mechanism for setting said arms with said distributing member in a motion forwards and backwards.

5. A dust cart according to claim 4 and having the distributing member journaled in a slot in each of the upper layer of two corresponding arms in such a way that the distributing member during the return stroke may be swung upwards.

6. In a dust cart comprising a collecting container and a swingable device for distribution of the upper layer of the load in the container, said swingable device comprising at least two swingable arms being oscillatorily journaled at their upper ends in bearings located above the proper collecting container and passing through an opening at the top of the collecting container and carrying at their lower ends a load distributing member comprising a transverse plate having its rear surface rounded off towards its lower edge, and said swingable arms being connected with a mechanism for setting said arms with said distributing member in a motion forwards and backwards.

7. In a dust cart comprising a collecting container and a swingable device for distribution of the upper layer of the load in the container, said swingable device comprising at least two swingable arms being oscillatorily journaled at their upper ends in bearings located above the proper collecting container and passing through an opening at the top of the collecting container and carrying at their lower ends a load distributing member, said swingable arms being connected with a mechanism for setting said arms with said distributing member in a motion forwards and backwards, and said distributing member being mechanically connected with a device for lifting a dust bin to be emptied into the collecting container.

## 5

8. A dust cart according to claim 7 and having at each side of an emptying hood a swingable arm connected with an endless chain movable in both directions in dependence of the lifting device for the dust bin.

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