April 24, 1945. E. B. WAGNER 2,374,397

CEMENT CONTAINER

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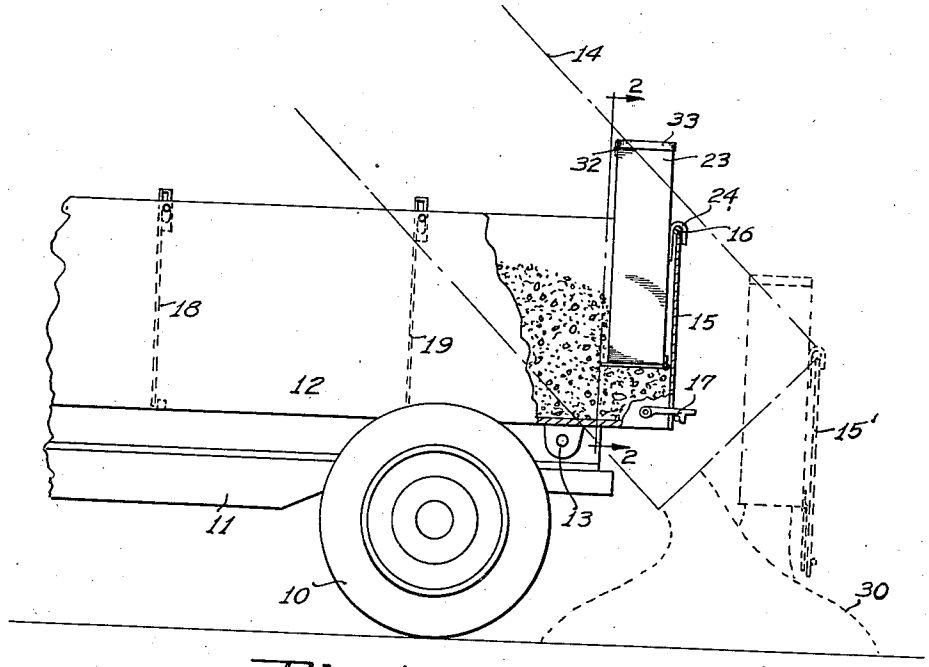


Fig. 1

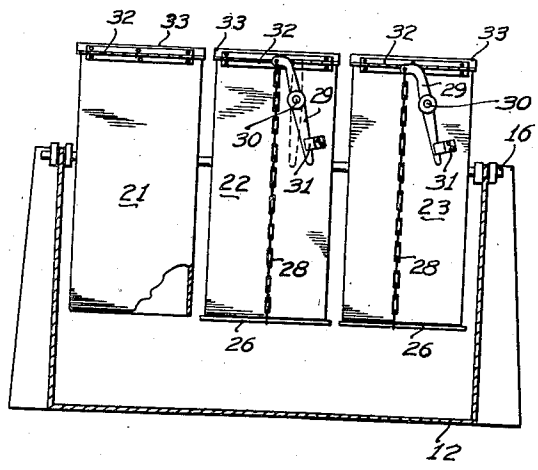


Fig. 2

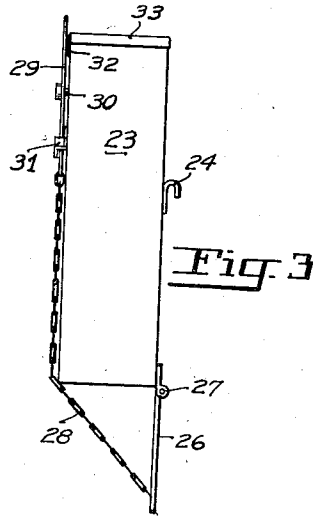


Fig. 3

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CEMENT CONTAINER

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7 Claims. (Cl. 298—8)

This invention relates to containers, and more particularly to cement containers adapted to be mounted on the rear end of a dump truck of the type used for carrying sand, aggregate or the like.

For delivering bulk cement simultaneously with sand, gravel or the like, to be mixed at the construction site, it is desirable to provide separate containers therefor. Such containers may be mounted on the truck so that measured quantities of cement may be loaded therein at the time that the sand or aggregate is loaded into the truck body. It is desirable that the containers be so constructed and arranged that they may readily be unloaded at the site of delivery with a minimum of effort. Cement containers have been provided heretofore for dump trucks, but usually they are constructed as an integral part of the dump truck body or securely fastened thereto as an auxiliary attachment. Such arrangements usually necessitate a special truck body construction or, at least, a considerable modification of an existing body in the way of mounting arrangements or bracket supports for the cement containers. This entails a considerable expense in addition to the cost of the containers themselves. It is desirable to provide cement containers which are complete units in and of themselves and which may readily be mounted on a conventional dump truck body without requiring any changes or modifications in the truck body itself.

In the case of cement container arrangements which are securely fastened to the truck body, the use of the truck for purposes other than for hauling ingredients for concrete mixing is definitely hampered by the presence of the attached cement containers. Frequently it is desirable to haul cement and gravel without at the same time hauling measured quantities of cement therewith, and the cement containers are not needed. It is further desirable, therefore, to provide cement containers which may readily be placed upon and firmly supported in position on a dump truck and, at the same time, be readily removable therefrom without requiring any tools or adjustment of any parts in mounting the containers in position upon the dump truck body.

Another outstanding objection to the cement containers as have been devised heretofore is due to the fact that in emptying, the cement pouring from the discharge outlet of the container is required to fall through a considerable distance before striking the ground or the top of the pile of sand or aggregate being unloaded from the dump truck, and the cement, upon striking the ground, tends to splash and distribute itself over a considerable area so that a considerable quantity of the cement is lost. In the event that the wind happens to be blowing, which usually is the case to a greater or lesser degree, much of the cement falling through the air is picked up by the wind and carried away in the form of a dust cloud. It is also desirable, therefore, to provide an arrangement of containers for handling bulk cement which may be emptied simultaneously with the dumping of the sand or the like from the truck body and in such a manner that there will be no loss of cement due either to splashing or to being carried away by the wind.

It is an object of the present invention, therefore, to provide a new and improved cement container as a complete unit, and which may readily be attached onto a dump truck body without requiring the use of any tools or adjustment of any parts.

It is a further object of the present invention to provide a new and improved bulk cement handling container which is adapted to be removably attached to the tail gate of a dump truck body of any conventional design without requiring any modification of the truck body itself.

A further object of the invention is to provide a new and improved bulk cement handling container which may quickly be attached to and be readily removable from the swinging tail gate of a dump truck body and which is adapted to be discharged in such a manner that there will be a minimum of loss of cement during the emptying thereof.

A further object of the present invention is to provide a new and improved combination of bulk cement handling containers as independent units whch may readily be mounted upon the swinging tail gate of a multi-compartment dump truck body and which containers may selectively be unloaded simultaneously with the unloading of the successive body compartments with a minimum of effort.

In accordance with the illustrated embodiment of the invention, bulk cement handling containers are provided in the form of elongated sheet metal box-shaped receptacles. The containers are provided with hooks on an outer side wall and adjacent the upper end thereof for hooking over the upper edge of the dump truck body. The containers are preferably hooked onto the tail gate so that they depend downwardly into the truck body next adjacent thereto. The containers are provided with discharge outlets at the

lower ends thereof and are adapted to be filled through open upper ends. In accordance with one embodiment of the invention, a plurality of containers are provided for use in connection with a multi-compartment truck body from which different successive batches of sand or gravel and correspnoding measures of cement are to be separately unloaded. One of the several containers is open at the lower end and is adapted to be filled with cement after the rear compartment has been first filled with sand or gravel. The remaining containers have gates at the lower ends thereof for controlling the emptying of the contents therefrom. Upon dumping of the truck body, the one open ended cement container is emptied simultaneously with the emptying of the rearmost body compartment, while the maining cement containers are selectively emptied simultaneously with the dumping of different successive body compartments.

Further objects and advantages of the invention will be pointed out in the ensuing description, while the features of novelty will be set forth more particularly in the appended claims.

In the drawing, Figure 1 is a side elevation showing the rear end of a dump truck body provided with cement containers constructed in accordance with the invention; Figure 2 is a front view taken along the line 2—2 of Figure 1 and showing the arrangement of a plurality of cement containers upon the rear end of the dump truck body; and Figure 3 is a side elevation of one of the cement containers illustrating the gate thereof in the opened position.

Referring to the drawing, in Figure 1 is shown the rear end of a dump truck of a conventional type such as is commonly employed for hauling ingredients for concrete mixing operations. The truck includes rear wheels 10, a chassis 11 supporting a body 12 which is pivotally mounted as at 13 for upward tilting to some dumping position as indicated by dotted lines 14. The rear end of the truck body 12 is provided with a tail gate 15 which is pivotally mounted along its upper edge for outward swinging movement about the transversely extending cross rod 16. Suitable latch means such as 17 is provided for retaining the tail gate 15 in the closed position during loading and transportation. Truck bodies of the type herein referred to are frequently of the multi-compartment type, being provided with a plurality of transverse partitions indicated generally by dotted lines 18 and 19, dividing the truck body, in this instance, into three compartments, into each of which is adapted to be loaded a predetermined measured quantity of sand, gravel or the like, or a mixture thereof. The compartments are adapted to be unloaded one at a time as, for example, into the skip of a concrete mixer having a charging capacity less than a full truck load.

Mounted upon the rear end of the truck are a plurality of cement containers, in this case three in number, corresponding to the number of compartments in the truck body, and indicated at 21, 22 and 23. The containers are preferably of an elongated sheet metal construction, rectangular in cross section, and of a suitable capacity corresponding to the amount of cement required for mixing with the portions of sand or aggregate which may be carried in the respective truck body compartments. Rigidly secured to the rear wall of the respective containers and toward the upper ends thereof are hooks 24 which are adapted to be hooked over the upper edge of the truck body and preferably over the upper edge of the tail gate as shown. The sheet metal containers 21 to 23, inclusive, may be made of relatively light weight metal so that these containers in themselves do not impose an excessive weight upon the upper edge of the tail gate 15. The hooks 24 may be of any suitable design for fitting cooperatively over the upper edge portion of the truck body upon which the containers are to be supported.

As shown in the drawing, the containers are hooked over the truck body tail gate so that they depend downwardly adjacent thereto within the rearmost compartment. One of the containers, for example, that at the left hand side, is open at the lower end, while the containers 22 and 23 are each provided with hinged gates 26 at their lower ends. The containers 22 and 23 are similar in all respects, and only one will be described in detail. The gate 26 is hinged along its rear edge as at 27 to the rear wall of the container and is adapted to be controlled by means of a chain 28 connected to the foremost edge of the gate which extends somewhat beyond the front side wall of the container. The upper end of the chain 28 is connected to one end of a lever 29 which is pivotally mounted intermediate its ends as at 30 to the upper end of the front wall of the container. The control lever 29 is adapted to be manually operated and in the position shown in full line in Figure 2 the free end of the lever 29 is hooked behind an offset lug 31 rigidly secured to the front wall of the container somewhat below the pivotal support 30 for the lever. As the outer end of the lever 29 is moved into locking position behind the lug 31, a strong leverage force is imposed upon the chain 28 tending to move the gate 26 tightly against the lower edge of the container side walls, thereby effecting a substantially leak proof joint therewith. An absolutely tight seal will not be necessary because of the fact that the containers depend within the truck body, and any leakage of cement from the containers will take place into the sand or gravel and will not be lost. It will be observed that the control lever 29 is arranged upon the upper end of the container which extends somewhat above the upper edge of the truck body. Thus the outer end of the lever 29 is readily accessible for manipulation by an operator standing on the side of the truck body. A more common practice in actual use, and which is very effective, is for the operator to reach above the upper edge of the truck body with a shovel, pressing against the lower end of the lever 29 so as to disengage it from the hook lugs 31 and thereafter releasing the lever to permit the gate 26 to drop open under the weight of the cement contained therewithin.

While gates and control means therefor may be provided at the bottom end of each of the containers, it is preferred to leave the gate off of one of the containers such as 21. The cement is not poured into the various containers until after the sand, gravel or aggregate has first been loaded into the various truck compartments. The sand or aggregate in the rearmost compartment will flow under the lowermost ends of the various containers and will form a firm support therebeneath. The lower end of the cement container 21 will be effectively closed by the sand filling the rear compartment. Measured quantities of cement may then be poured into the various containers and the greater portion of the weight of the filled containers is carried by the sand or gravel underlying the containers.

Upon reaching the destination where the concrete is to be mixed, the tail gate **15** is unlatched and the truck body tilted to the dotted line position **14** as indicated in Figure 1. Upon outward swinging of the tail gate **15** about the transverse hinge rod **16** to the position shown by dotted lines **15'**, the containers will similarly pivot about the upper edge of the tail gate so as substantially to maintain the vertical poistion. Upon the emptying of the rear compartment of the truck body, the cement contents of the container **21** will automatically flow therefrom along with the sand or aggregate of the rear compartment. This cement will mix with the sand or aggregate as it flows from the truck body and there will be no likelihood for the cement to be caught by the wind and carried away as in the case when cement is poured by itself through a free fall. Moreover, it will be observed that as the truck body is tilted to the dumping position the lowermost edge of the tail gate is lowered to a position relatively close to the ground, or at least relatively closely adjacent the upper surface of the pile of ingredients indicated at **30** being dumped from the truck. Thus the cement flowing from the lower ends of the containers is shielded from the wind by the gravel flowing from the rear end of the truck on the one side and by the lower edge portion of the truck tail gate on the other side.

In order that the containers will not materially interfere with the dumping of ingredients from the truck body, they are of a length such that the lowermost end thereof is spaced considerably from the floor of the truck body. This spacing is preferably somewhat greater than the width of the containers themselves in order that following the dumping operation the downwardly depending gates **26** of the opened containers will not interfere with the closing of the truck tail gate **15**.

It is not necessary that the containers be very deep so as materially to diminish the carrying capacity of the rear compartment of the truck body, for the containers may extend considerably above the upper edge of the truck body as indicated. It is preferred, however, that the greater portion extend downwardly into the truck body in order that the center of gravity will lie safely below the hinge rod **16** of the tail gate and thus prevent the likelihood of the containers rocking rearwardly over the tail gates when returning empty for a new load. It will be obvious that when the truck is loaded the containers will be anchored firmly in place by the sand or gravel filling the rear compartment.

The various containers are provided with covers **33** which are preferably hinged as at **32** to the forward wall of the containers. Such covers will protect the cement against premature wetting by rain while hinging along the forward edge will prevent the covers from being blown open during transportation.

Having described the principle of the invention in what is considered to be preferred embodiments thereof, it is desired that it be understood that the specific details shown are merely illustrative, and that the invention may be carried out by other means.

I claim:

1. Bulk cement handling means for use with a dump truck body having a plurality of transverse partitions dividing said body into a plurality of compartments, and a tail gate pivoted along the upper edge thereof, said means comprising a plurality of bulk cement handling containers depending within the rearmost compartment and supported from the upper edge of said tail gate, means secured to said containers for removably attaching said containers to said tail gate, the number of said containers corresponding with the number of said compartments, a first of said containers being open at the lowermost end thereof, the remainder of said containers having gates at the lower ends thereof.

2. Bulk cement handling means for use with a dump truck body having a plurality of transverse partitions dividing said body into a plurality of compartments and a tail gate pivoted along the upper edge thereof, said means comprising a plurality of bulk cement containers supported upon said tail gate and depending into the rearmost of said compartments, the number of said containers corresponding to the number of said compartments, one of said containers being open at the lowermost end thereof whereby contents are permitted to flow automatically therefrom upon tilting of said body for dumping the rearmost of said compartments, gates at the lower ends of each of the remaining of said containers for selectively controlling the emptying thereof upon successive emptying of the remaining body compartments.

3. Bulk cement handling means for use with a dump truck body having a plurality of transverse partitions dividing said body into a plurality of compartments and a tail gate pivoted along the upper edge thereof, said means comprising a plurality of elongated bulk cement handling containers supported from the upper edge of said tail gate and depending into the rearmost of said compartments, spaced apart hook means secured to the outside of one of the walls of said containers adjacent the upper end thereof for engaging over the upper edge of said tail gate, said containers being adapted for pivotal movement with said tail gate upon dumping of said body, independently operable gates at the lower ends of said containers pivoted along the rear edge thereof, control means for said gates secured to the forward wall of said containers and adjacent the upper ends thereof.

4. Bulk cement handling means for use with a dump truck body having a tail gate pivoted along the upper edge thereof, said means comprising a bulk cement handling container removably attached to said tail gate and depending into said truck body, a gate at the lower end of said container for controlling the emptying of contents thereof, hinge means securing said container gate to the rear side of said container, a flexible means for retaining said container gate in the closed position, and lever means secured to the forward side of said container adjacent the upper end thereof and connected to said flexible means for controlling opening and closing of said container gate.

5. For use with a truck body having a tail gate pivoted along the upper edge thereof, a bulk cement handling container adapted to be removably attached to the upper edge of said tail gate and depending into said truck body, a control gate extending across the lowermost end of said container and hingedly attached along the rear edge thereof to said container, means attached to a forward wall of said container for controlling said container gate, the length of said container being such that when attached to said tail gate the gate thereof in the opened position is spaced somewhat from the floor of said truck

body so as not to interfere with the closing of said tail gate.

6. A bulk cement handling means comprising an elongated metal container, means secured to said container for removably supporting said container upon the tail gate of an aggregate dump truck body and in a depending relation within said truck body, said container having a discharge opening in the lower end thereof, said opening being open when said truck body is empty and substantially closed solely by material loaded into said truck body to permit filling of said container and whereby said container is automatically emptied upon the dumping of said material from said body.

7. A bulk cement handling means for use with an aggregate dump truck, said means comprising an elongated metal container, hook means secured to an outer side wall of said container adjacent the upper end thereof for loosely and removably hooking said container over the upper edge of a dump truck body and in a depending relation within said body, said container having a discharge opening in the bottom thereof and being adapted to be substantially closed solely by material loaded into said body to permit filling of cement into said container.

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