Aug. 25, 1959 S. C. CUNNINGHAM ET AL 2,901,148

BUCKET FOR CONVEYING CONCRETE

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Fig. 1

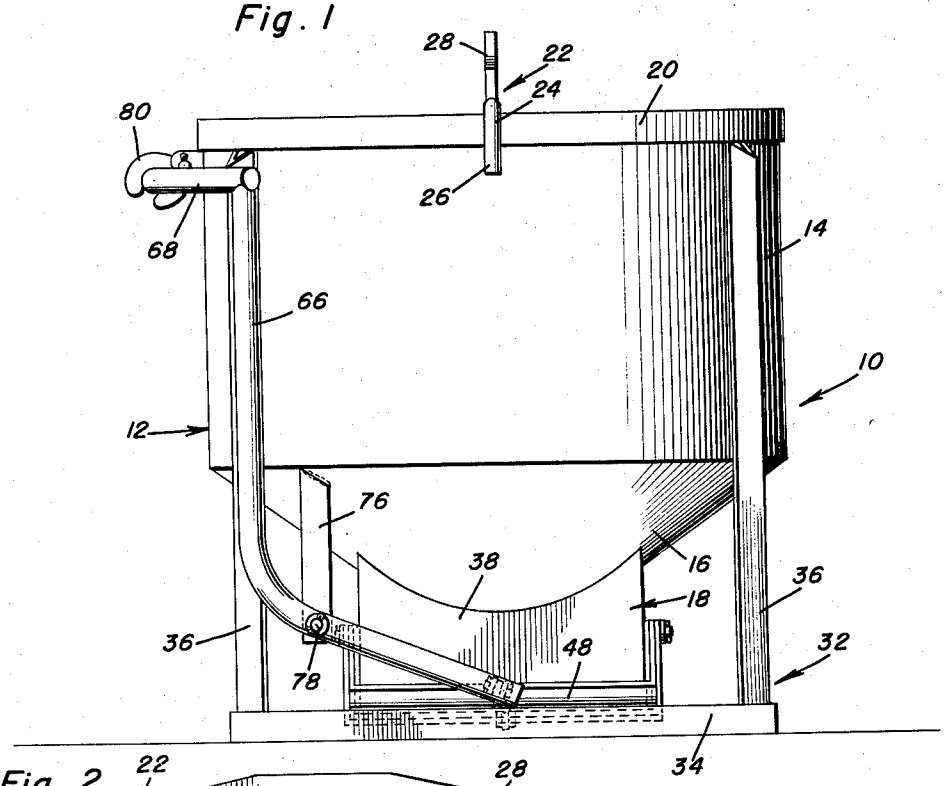


Fig. 2

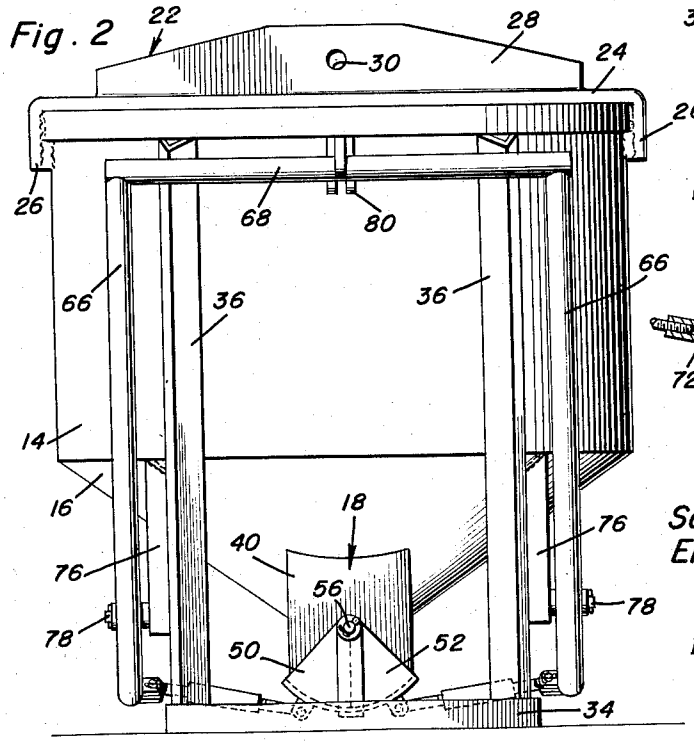
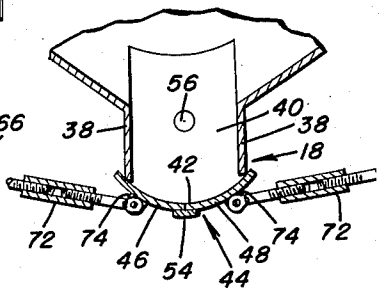


Fig. 5



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Fig. 3

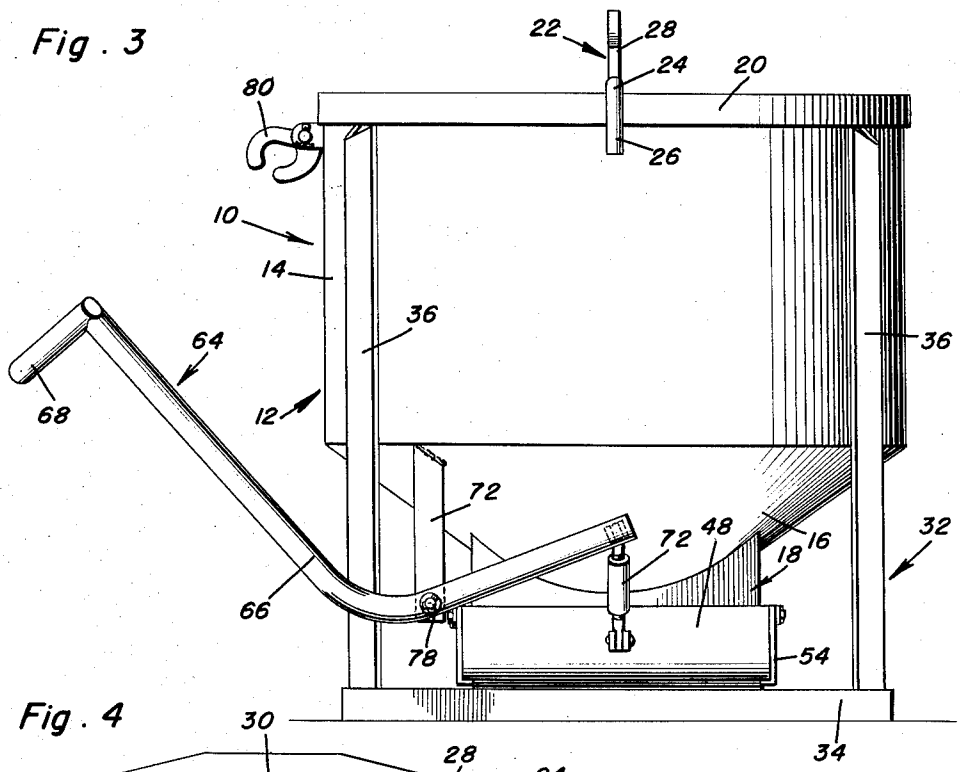
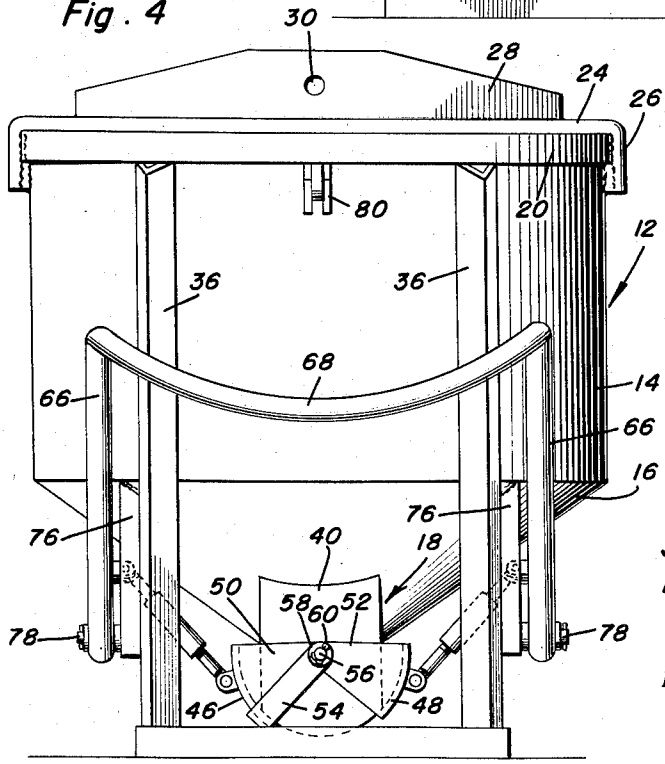


Fig. 4



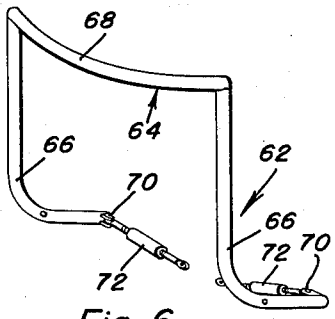


Fig. 6

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BUCKET FOR CONVEYING CONCRETE

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2 Claims. (Cl. 222—185)

This invention relates in general to new and useful improvements in concrete conveying means, and more specifically to an improved bucket for conveying concrete.

The primary object of this invention is to provide a bucket for conveying concrete, the bucket being provided at the lower end thereof with a dicharge scupper having an open lower end normally closed by a gate, the gate being in the form of a pair of opposed gate members which are mounted on single pivots at opposite ends of the discharge scrupper for simultaneous swinging movement in opposite directions.

Another object of this invention is to provide an improved bucket for conveying concrete, the bucket including a stand for supporting the bucket on the ground or other suitable supporting surface, the lower part of the bucket being in the form of a discharge scupper closed by a discharge gate, the discharge gate and a major part of the operating mechanism therefor being disposed in the confines of the stand and protected thereby.

Still another object of this invention is to provide an improved bucket for conveying and dumping concrete, the bucket including an upper cylindrical portion and a lower conical portion which terminates in a discharge scrupper, the shape of the bucket being such that the dumping of concrete therefrom is uniform.

A further object of this invention is to provide an improved concrete bucket, the bucket having a lower discharge scupper which is normally closed by a discharge gate, the gate being formed of gate members which have a sealing engagement with the dischage scupper so as to permit the conveying of concrete without the loss of water or other liquid from the concrete mixture thus retaining the concrete mix within the bucket in its original state.

A still further object of this invention is to provide an improved concrete conveying bucket, the bucket having a lifting bail at the upper end thereof which is so constructed that when extreme stresses are applied in the lifting of a loaded bucket, the bail will not bend and thus distortion of the bucket is avoided.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

Figure 1 is a side elevational view of the bucket and shows the general details thereof;

Figure 2 is an end view of the bucket of Figure 1 taken from the end thereof where the bail operator is located;

Figure 3 is a side elevational view similar to Figure 1 and shows the discharge gate of the concrete bucket being in open position;

Figure 4 is an end view similar to Figure 2 and shows the discharge gate in an open position;

Figure 5 is a fragmentary vertical sectional view taken through the lower part of the bucket and shows the specific details of the discharge gate and the connection between links and gate members; and

Figure 6 is a perspective view on a reduced scale of the operating means for the discharge gate.

Referring now to the drawings in detail, it will be seen that there is illustrated the bucket assembly which is the subject of this invention, the bucket assembly being referred to in general by the reference numeral 10. The bucket assembly 10 includes a bucket which is referred to in general by the reference numeral 12. The bucket 12 is formed of a cylindrical upper portion 14 which terminates at its lower end in a conical portion 16. The conical portion 16 terminates in an elongated discharge scupper 18.

The upper edge of the cylindrical upper portion 14 is reinforced by a reinforcing band 20. Extending across the reinforcing band 20 at the center thereof is a lifting bail which is referred to in general by the reference numeral 22. The lifting bail 22 includes a bar 24 which extends across the cylindrical upper portion 14 and which terminates in depending end portions 26 which are suitably secured to the bucket 12. Extending upwardly from the bar 24 and projecting a major part of the distance across the bar 24 is a vertical plate 28. The vertical plate is provided with an opening 30 for receiving a lifting hook (not shown). The vertical plate 28 so reinforces the bar 24 so that when the loaded bucket 12 is lifted, there is no bending of the lifting bail 22 and as a result there is no distortion of the bucket 12.

In order that the bucket 12 may be set upon the ground or other suitable supporting surface, there is provided a stand 32. The stand 32 includes a generally rectangular base 34 which has extending upwardly from corners thereof standards 36. The standards 36 are suitably secured to exterior surface portions of the upper portion 14.

The discharge scupper 18 includes spaced parallel side plates 38 which are connected together at opposite ends thereof by end plates 40. The end plates 40 have arcuate lower edges 42. The lower end of the discharge scupper 18 is open and is normally closed by a gate construciton which is referred to in general by the reference numeral 44.

The gate construction 44 includes a pair of gate members 46 and 48 which are arcuate in cross-section, as is best shown in Figure 5 and which include pie-shaped end plates 50 and 52, respectively. The gate member 46 is provided with a strap portion 54 which is used both for the mounting of the gate member 46 and for forming a seal between the gate member 46 and the gate member 48, as is best shown in Figure 5.

Extending from the end plates 40 of the discharge scupper 18 are aligned pivots 56. Each of the pivots 56 receives one of the end plates 52 and a portion of the strap 54. First the gate members 46 and 48 are pivotally mounted on single pivots at opposite ends of the discharge scupper 18. The gate members 46 and 48 are retained in place on the pivots 56 by means of washers 58 and lock keys 60.

It is to be understood that due to the particular configuration of the gate members 46 and 48, the end plates 50 and 52 and the discharge scupper 18, there is formed between these components a seal when the gate members 46 and 48 are in a discharge scupper closing position. The seal is such that water or other liquids cannot run from the bucket 12 and thus the consistency of the concrete mix disposed in the bucket 12 will remain the same during transportation thereof in the bucket 12.

In order that the gate members 46 and 48 may be operated, there is provided operator means which are best illustrated in Figure 6 and which are referred to in gen-

eral by the reference numeral 62. The operator means 62 include a bail operator which is referred to in general by the reference numeral 64. The bail operator 64 is in the form of a pair of L-shaped arms 66 which are disposed in spaced parallel relation and which have their upper ends connected together by an arcuate bail handle 68. The lower ends of the arms 66 are provided with opposed fittings 70 to which are pivotally connected links 72. The links 72 are of the adjustable length type, as is best shown in Figure 5, and are pivotally connected to fittings 74 carried by the gate members 46 and 48.

Depending from the bucket 12 is a pair of hangers 76. The hangers 76 carry pivot pins 78 on which are mounted for pivotal movement intermediate portions of the arms 66, as is best shown in Figure 3. It is to be noted that the arms 66 are disposed in vertical planes which are parallel to the vertical plane passing through the pivots 56.

Carried by an upper part of the bucket 12 is a latch 80. The latch 80 normally engages the handle 68 of the bail operator 64 so as to retain the bail operator 64 in a position retaining the gate members 46 and 48 in closed positions, as is best shown in Figure 1. When it is desired to discharge concrete from the bucket 12, it is merely necessary to disengage the handles 68 from the latch 80 and to pivot the bail operator 64 downwardly to the position illustrated in Figure 3. Downward movement of the arms 66 result in the upward movement of the lower ends thereof and the resultant outward and upward movement of the gate members 46 and 48 to the open positions of Figure 4.

It is to be noted that the gate members 46 and 48 as well as the link 72 are positioned within the confines of the stand 32 and thus protected thereby. Also, when the bail operator 64 is in a position for retaining the gate members 46 and 48 in closed positions, the arms 66 are disposed generally within the confines of the stand 32 and thus protected thereby.

From the foregoing description of the present invention, it will be readily apparent that there has been devised an extremely simple mechanism for controlling the dumping of concrete from a concrete bucket. Further, the concrete bucket is so designed whereby due to the shape thereof the dumping operation is a uniform one which is very important in the handling of concrete. Also, the operating means for the gate members is such that concrete or other foreign adhesive substance will not clog or otherwise interfere with the operation of the moving parts of the bucket.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly, all suitable modifications and equivalents may be resorted to, falling within the scope of the invention as claimed.

What is claimed as new is as follows:

1. A bucket assembly for conveying concrete, said bucket assembly comprising a bucket, said bucket including a cylindrical upper portion and a conical lower portion, said lower portion terminating in a discharge scupper, said discharge scupper having an open lower end, opposed gate members normally closing said open lower end, said gate members being pivotally mounted on single pivots at opposite ends of said discharge scupper, operator means connected to said gate members for swinging said gate members between open and closed positions, hangers depending from said bucket, said operator means including a bail operator in the form of a pair of spaced arms connected together at their upper ends by a transverse handle, means pivotally mounting said arms on said hangers, links extending between said arms and said gate members, and pivoted thereto, said links being extensible to take up wear on the pivots of said links to said arms and gate members and wear on the pivotal mountings of said arms to said hangers.

2. A bucket assembly for conveying concrete comprising a bucket including a cylindrical upper portion and a conical lower portion, said lower portion having a centrally disposed opening therein and being provided thereat with a discharge scupper having an open lower end, a pair of opposed gate members normally closing said open lower end of the discharge scupper and each of said gate members being pivotally mounted on opposite ends of the discharge scupper, a plurality of vertical standards disposed in circumferentially equidistantly spaced relation around said cylindrical portion of the bucket and being rigidly affixed thereto, each of said standards extending below the lower end of said cylindrical portion and below said discharge scupper, a generally rectangular base rigidly affixed to the lower ends of said standards, a pair of hangers rigidly affixed to and depending from the conical portion of said bucket, operator means for opening and closing said gates including a pair of spaced, parallel arm members of generally L-shaped configuration each pivotally mounted in an intermediate portion thereof on an associated lower end of said hangers, the upper ends of said arms being interconnected by an arcuate bail handle and the lower ends of said arms having links pivotally attached thereto, said links extending to said gate members for actuation thereof upon movement of said operator means, and means normally retaining said operator means in position to close said gate members, said discharge scupper including a pair of spaced parallel side plates rigidly affixed to the conical portion of said bucket and depending therefrom and a pair of end plates rigidly connecting said side plates and extending downwardly from said conical portion of the bucket, said end plates having arcuate lower end portions and said gate members being pivotally attached to intermediate portions of said end plates and being arcuated in conformity with the lower ends thereof, said side and end plates projecting a substantial distance below the conical portion of said bucket to provide side clearance permitting the opening of said gate members as they are swung about the pivotal axis thereof, and the lower ends of said arms, when the gates are in closed position, being disposed at substantially the same level as said gate members, whereby said link members are disposed in substantially horizontal position when said gate members are closed.

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