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PORTABLE PLACER FOR CONCRETE AND THE LIKE

Filed Jan. 5, 1962

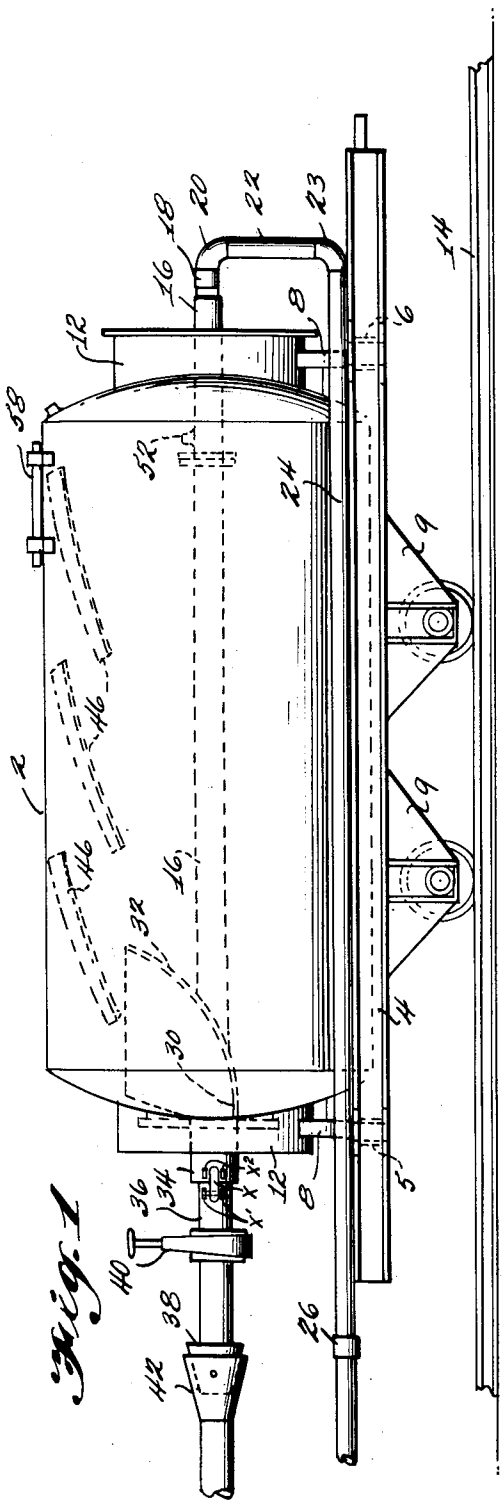


Fig. 1

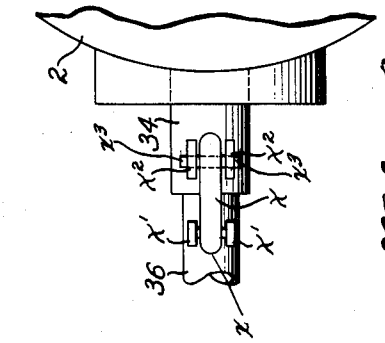


Fig. 3

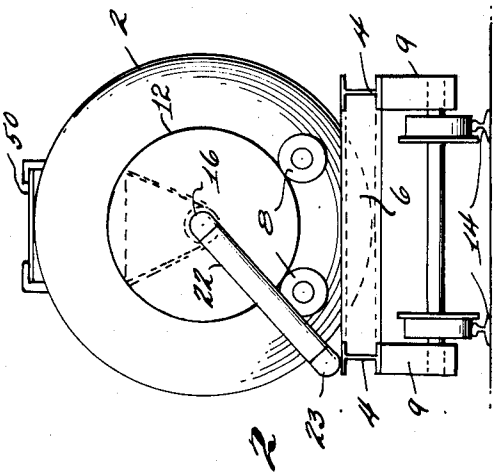


Fig. 2

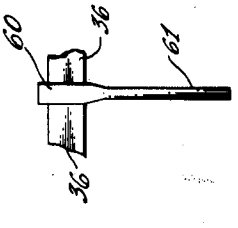


Fig. 4

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PORTABLE PLACER FOR CONCRETE AND THE LIKE

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This invention relates to portable placers for concrete and the like, comprising a tank which is adapted to be substantially filled with concrete or other material, transported to the place where the material is to be used, and from which the material is then discharged by the action of compressed air.

As mentioned in certain of my issued patents, including Patent No. 2,593,556 dated April 22, 1952, and Patent No. 2,238,051 dated April 15, 1941, and in my patent application Serial No. 551,371, filed December 6, 1955, now abandoned, portable placers of this type have numerous uses, among which is the placing of concrete linings in tunnels, subways, and other structures. Frequently, the tanks of such portable placers are constructed and arranged to be rotated while they are being moved to the point of discharge, thereby achieving more through mixing.

It is among the objects of the present invention to provide a portable placer for concrete and the like which is characterized by increased efficiency in discharging its contents at the point of delivery, requiring no tilting movement in the manner of a number of prior art patents, including my aforementioned Patent No. 2,593,556.

Another object is the attainment of the foregoing by the use of a combination of elements which is comparatively simple and inexpensive to manufacture, and which is rugged and durable in service.

While the invention is susceptible of various modifications and alternative constructions, certain preferred embodiments have been shown in the drawings and will be described below in considerable detail. It should be understood, however, that there is no intention to limit the invention to the specific forms disclosed, but, on the contrary, the intention is to cover all modifications and alternative constructions falling within the spirit and scope of the invention as expressed in the appended claims.

In the drawings:

FIGURE 1 is a side elevation of a portable placer for concrete and the like which embodies the teachings of the present invention;

FIGURE 2 is a rear elevational view;

FIGURE 3 is a detailed view illustrating a releasable latch mechanism which may be utilized to enable the conjoint rotation of certain elements which will be referred to hereinafter; and

FIGURE 4 is an elevational view of a large pipe wrench of conventional design with an elongate handle portion the purpose of which will be later described.

Referring more particularly to the drawings, the numeral **2** designates the tank, or container, of the portable concrete placer of the present invention, the same being horizontally disposed and having a cylindrical cross-section.

Referring more particularly to FIGURE 1, the tank **2** is disposed between a pair of longitudinally extending and parallel frame members **4** which are connected by front and rear transverse frame members **5** and **6**, respectively. Mounted atop each of the transverse frame members **5** and **6**, and relatively adjacent the outer ends thereof, is a pair of aligned rollers **8**, the axes of which are parallel with the longitudinal frame members **4**. Aligned pairs of conventional wheeled railway trucks **9** support the longitudinal frame members **4**.

Each end of the tank **2** comprises a cylindrical collar

12, each of said collars being supported by the adjacent pairs of rollers **8**, whereby the said tank is rendered freely rotatable. Any suitable power means may be employed for rotating the tank **2**, including (for example) an electric motor mounted on the frame with chain-and-gear connections (none of which form part of the present invention, and, accordingly, are neither shown herein nor described hereinafter).

The aligned wheeled railway trucks **9** and, accordingly, the longitudinally extending and parallel frame members **4**, transversely extending rear frame members **5** and **6** and tank **2** are adapted for unitary movement on a suitable trackway **14** between the point at which the portable concrete placer may be filled and the point from which its contents are to be discharged.

According to the teachings of the present invention, the body of the tank **2** is cylindrical, with an internally disposed axial pipe **16** of substantial diameter, the rearward end of said pipe being journaled in, and projecting from, the rear end of said tank and provided with a conventional quick-detachable connection **18**. The rearward portion of the quick-detachable connection **18** is connected to an elbow **20** which, through a downwardly depending pipe **22** and lower elbow **23**, communicates with a longitudinally extending pipe **24** which projects from the forward end of the frame and communicates through a quick-detachable connection **26** with an air conduit which receives compressed air from a suitable source of supply (not shown).

The forward end of the axial pipe **16** in the tank **2** is attached to and communicates with the lower end of a hopper **30** which is disposed in said tank but which is not secured thereto for conjoint rotation therewith. The rearward wall of the hopper **30** is shown at **32** as being arcuate when viewed in elevation.

To the center of the forward end of the tank **2**, there is secured an exteriorly disposed annular collar **34**; and in it, there is journaled the rearward end of a relatively short pipe **36** which communicates with, and is secured to, the bottom of the hopper **30**, as in the case of the axial pipe **16**. It will be understood by those skilled in the art that suitable packing glands (not shown) will be employed where the pipe **16** passes through the rear end of the tank and where the discharge pipe **36** passes through the front end thereof. The forward end of the discharge pipe **36** is provided with a frusto-conical member **38**; and a conventional gate valve **40** is disposed between it and the collar **34** (which is journaled in the front end of the tank **2**). The frusto-conical member **38** is adapted to be received in a member **42** having a correspondingly shaped interior, the said member **42** being situated at the discharge point of the apparatus.

The interior of the tank **2** is provided with agitating blades **46** which may acceptably be of the type illustrated in my aforementioned Patent No. 2,238,051. Adjacent its rearward end, the cylindrical tank **2** is provided on its exterior surface with a manhole which communicates with the interior of the tank, said manhole being closed with a suitable pressure resistant cover **58** which may acceptably take the form which is illustrated in my Patent No. 2,593,556.

As before stated, the axial pipe **16** which is journaled in the rear end of the tank **2** is secured to the hopper **30** (at the bottom thereof), and so, too, is the discharge pipe **36** which is rotatably mounted in the collar or sleeve **34**. Any suitable means may be employed for locking the discharge pipe **36** and attached hopper **30** to the collar or sleeve **34** (which is fixed with respect to the tank) in order to permit them to rotate conjointly with the tank **2** after it has been loaded and during its movement to the discharge point.

As shown in FIGURE 3, the locking means may com-

prise a conventional latching device in the form of an elongate latch link X which is pivotally mounted adjacent one of its ends between a pair of ears X^1 which are formed on the discharge pipe 36, the other end of the elongate latch link being adapted to be removably disposed between a pair of apertured lugs X^2 which are formed on the collar 34. A removable pin X^3 extends through the apertured lugs X^2 in order to retain the elongate latch link X in the aforementioned latched position. During the time the loaded tank 2 is being transported and rotated along with the hopper 30, the axial pipe 16 and discharge pipe 36 will be free to rotate accordingly, since their outer ends will be disconnected from the elements with which they communicate during the discharging operation. Thus, the hopper enters into the mixing operation along with the agitating blades 46 on the interior of the tank 2.

Upon arrival at the discharge point, the rotation of the tank 2 will be discontinued and the latching means between the discharge pipe 36 and collar 34 released. Then, the discharge pipe 36 and/or the axial pipe 16 (both of which are secured to the hopper 30) may be suitably locked against rotation with said tank and with said hopper in upright position. The position of the hopper may, of course, be readily ascertained by observing the position of the apertured lugs X^2 on the collar or sleeve 34. An acceptable means for locking axial pipe 16 and discharge pipe 36 against rotation with the tank 2 may comprise a large pipe wrench 60 with an elongate handle portion 61 of such length that it may occupy a position between the longitudinal frame members 4 and contact one of the same.

Accordingly, when the tank 2 is rotated at the discharge point, the concrete will be moved forwardly and elevated by the angularly inclined vanes 46 on the interior of the tank and thereby supply the hopper with concrete.

Jets 52 may be utilized to admit air in jet form to the rear of the tank 2. If desired air under pressure may also be independently admitted directly to the interior of the tank in order to maintain uniform pressure behind the concrete.

The present application is a continuation-in-part of my patent application Serial No. 735,248, now abandoned, filed May 14, 1958, and entitled "Portable Placer for Concrete and the Like."

While I have shown and described certain specific embodiments of the present invention, it will be readily understood that I do not wish to be limited exactly thereto, since various modifications may be made without departing from the scope of the invention as defined in the appended claims.

I claim:

1. A portable placing apparatus of the character described comprising a wheeled truck; an elongate horizontally disposed tank rotatably supported by said wheeled truck; said tank being provided with front and rear end closure members and having a material inlet opening; a pressure-resistant closure for said material inlet opening; a hopper disposed interiorly of said tank and adjacent its front end closure member; the bottom of said hopper being disposed adjacent the axial center line of said tank; a pipe disposed axially within said tank and secured to said hopper and communicating with the bottom thereof; detachable means for supplying said pipe with compressed air; a discharge pipe secured to said hopper and communicating with the bottom thereof; said tank being rotatable independently of said first-named pipe, said hopper and said discharge pipe; and releasable means for securing said discharge pipe, said hopper and said first-named pipe for conjoint rotation with said tank.

2. A portable placing apparatus of the character described comprising a wheeled truck; an elongate horizontally disposed tank rotatably supported by said wheeled truck; said tank being provided with front and rear end closure members and having a material inlet opening; a pressure-resistant closure for said material inlet opening; a hopper disposed interiorly of said tank and adjacent its front end closure member; the bottom of said hopper being disposed adjacent the axial center line of said tank; a pipe disposed axially within said tank and secured to said hopper and communicating with the bottom thereof; detachable means for supplying said pipe with compressed air; a discharge pipe secured to said hopper and communicating with the bottom thereof; said tank being rotatable independently of said first-named pipe, said hopper and said discharge pipe; means for locking said discharge pipe for conjoint rotation with said tank; and means for preventing the rotation of said axial pipe with said tank.

3. A portable placing apparatus of the character described comprising a wheeled truck; an elongate horizontally disposed tank rotatably supported by said wheeled truck; said tank being provided with front and rear end closure members and having a material inlet opening; a pressure-resistant closure for said material inlet opening; a hopper disposed interiorly of said tank and adjacent its front end closure member; the bottom of said hopper being disposed adjacent the axial center line of said tank; a pipe disposed axially within said tank and secured to said hopper and communicating with the bottom thereof; detachable means for supplying said pipe with compressed air; a discharge pipe secured to said hopper and communicating with the bottom thereof; said tank being rotatable independently of said first-named pipe, said hopper and said discharge pipe; pivoted latch means for locking said discharge pipe for conjoint rotation with said tank; and means for preventing the rotation of said axial pipe with said tank.

References Cited in the file of this patent

UNITED STATES PATENTS

995,422	Clarke	June 13, 1911
2,238,051	Hackley	Apr. 15, 1941