W. L. CANNIFF, DEC'D.

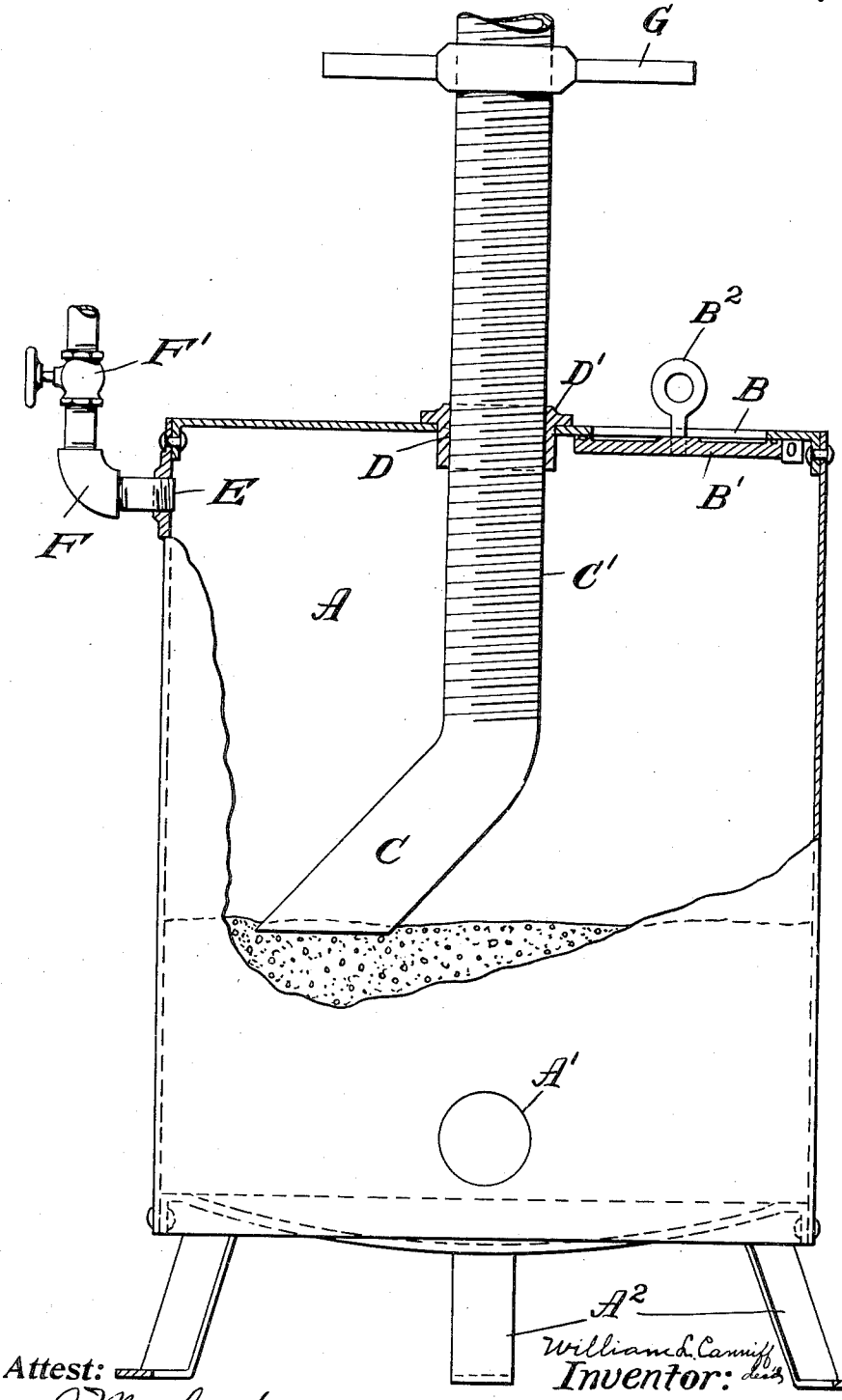
R. L. CANNIFF, ADMINISTRATOR.

CONCRETE MACHINE.

APPLICATION FILED DEC. 12, 1912.

1,067,781.

Patented July 15, 1913.



Attest:

Edna A. Moreland

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by S. J. Cox Atty.

UNITED STATES PATENT OFFICE.

WILLIAM L. CANNIFF, DECEASED, BY ROY L. CANNIFF, ADMINISTRATOR, OF NEW YORK, N. Y.

CONCRETE-MACHINE.

1,067,781. Specification of Letters Patent. Patented July 15, 1913.

Application filed December 12, 1912. Serial No. 736,309.

To all whom it may concern:

Be it known that WILLIAM L. CANNIFF, now deceased, of whom the undersigned, ROY L. CANNIFF, who resides at 106 West One Hundred and Fifth street, in the borough of Manhattan, in the city, county, and State of New York, is the duly appointed administrator, invented certain new and useful Improvements in Concrete-Machines, of which the following is a specification.

The improvements relate to machines for mixing and discharging and placing mixtures of cement and other substances, commonly called concrete, cement and grout, and in which mixtures the said materials are mixed with a suitable quantity of water and brought to a more or less fluent state.

The invention consists in the construction and combination of the apparatus and its parts and the manner of treating the concrete hereinafter described and claimed, and illustrated in the accompanying drawings whereby the device is adapted for the uses and purposes herein set forth, or which will be apparent to those skilled in the art.

In the drawings, the figure is a side elevation of a concrete machine embodying the improvements, with certain parts broken away to expose inner parts.

Heretofore it has been the practice, to some extent, to mix grout in a vessel provided with a supply of compressed air and to then utilize the compressed air to eject the mixed grout from the vessel, the air pressure being provided on the side of the batch opposite the side next to the opening of the vessel, so that the grout is pushed out through the opening by the air pressure behind it. An apparatus adapted to operate in this manner is shown in Patent No. 873,345 of December 10, 1907, to William L. Canniff, the deceased inventor of the present improvements. By the use of this apparatus the disadvantages of the process of ejecting concrete—which usually contains coarse materials such as crushed stone or gravel—by means of air pressure behind the mass in the mixing vessel are avoided, and the concrete may be mixed, ejected, and placed at the point where it is to be used, at uniform speed and pressure, and in a thoroughly mixed state.

In the drawings, A represents a cylindrical vessel for the reception of concrete materials. It is provided with a handhole A′ near its convex bottom and is suitably mounted on legs A^2. It is also provided with a charging port B provided with a hinged door B′ opening inward and having a lifting ring B^2. Through this port the mixed concrete or concrete materials may be poured into the cylinder. The door is adapted to be held closed by the air pressure within the cylinder after the compressed air inlet has been opened. The cylinder is also provided with an inlet E for compressed air through which the compressed air pipe F with valve F′ communicates with the interior of the vessel.

The cover of the concrete vessel A is provided with a discharge opening D having an interiorly threaded collar D′ through which the discharge pipe C extends. This discharge pipe is exteriorly threaded as shown at C′ and its lower portion is turned at an angle of about 45 degrees and mitered at its lower edge so that the mouth of the discharge pipe is horizontally disposed and consequently substantially parallel with the upper surface of the contents of the cylinder. A handle G is secured to the discharge pipe a suitable distance above the top of the cylinder or vessel A, by which said discharge pipe may be rotated and its lower end consequently raised or lowered by reason of the threaded connection between the said pipe and the collar D′ of the cover. This rotating movement also causes the mouth of the discharge pipe to travel around over the surface of the concrete materials in the vessel and to consequently cause agitation of such materials over the entire area so that the entire body of concrete materials is affected by the movement in the direction of the outlet. The discharge pipe may be rotated by any desired means, but it should always be so operated that its lower end is constantly maintained in contact with the upper surface of the materials in the vessel, or in proximity thereto. It will be understood that the discharge pipe above the handle G may be provided with a suitable connection with means for conveying the concrete to the point where it is to be placed and that the said connection should be such as to permit the rotation of the said discharge pipe, when it is made in the form shown in the drawing.

In operating the device the materials are first placed in the vessel A and the door B′

closed. The valve of the pipe F is then opened and air under pressure thus admitted. This will cause the compressed air to seek to escape through the concrete and consequently to pass up through the discharge pipe C, carrying the concrete with it. The discharge pipe is then rotated so as to cause its lower end to revolve on or near the surface of the body of concrete and to be gradually lowered through the action of the screw threads of the pipe and the collar D'. The contact of the lower end of the pipe with the body of concrete is made evident to the operator by the noise caused by the agitation of the concrete and by the resistance of the discharge pipe to rotary movement, and in this manner he will be able to maintain the proper relation between the lower end of the discharge pipe and the concrete in the vessel.

It will be understood that the invention is not limited to the precise construction and arrangement of apparatus shown in the drawing and herein described, but that changes in the apparatus may be made, and that some of the parts may be omitted or supplemented by other parts without departing therefrom. Thus it is apparent that other means may be employed to effect the vertical or lateral movement, or both movements, of the discharge conduit; that the upper surface or level of the materials in the vessel may be controlled in such a manner as to maintain it in proper relation with the intake of said discharge conduit; and that mechanical or other means for effecting a further mixture of the materials may be provided in the vessel or in the discharge pipe, or elsewhere.

What I claim is:

1. In a device of the character described, the combination of a vessel adapted to contain concrete or concrete materials, provided with an opening for supplying the same to the vessel, a door for closing said opening, means for injecting air under pressure into said vessel above the upper surface of the concrete and a discharge pipe said discharge pipe extending from the surface of the said concrete to the outside of the vessel at a point above the said concrete and having an intake opening in proximity to the said surface, and means for maintaining the said opening in such proximity during variations in the quantity of concrete in the vessel.

2. In a device of the character described, the combination of a vessel adapted to contain concrete or concrete materials, provided with an opening for supplying the same to the vessel, a door for closing said opening, means for injecting air under pressure into said vessel above the upper surface of the concrete and a discharge pipe said discharge pipe extending from the surface of the said concrete to the outside of the vessel at a point above the said concrete, and means for raising and lowering the intake end of said discharge pipe.

3. In a device of the character described, the combination of a vessel adapted to receive concrete materials provided with an opening through which it may be charged, a door for closing said opening, a conduit for supplying air under pressure to the upper part of said vessel and an outlet conduit extending from the upper part of said vessel to a point within the same, and means for moving said outlet conduit vertically and laterally.

4. In a device of the character described, the combination of a vessel adapted to receive concrete materials provided with an opening through which it may be charged, a door for closing said opening, a conduit for supplying air under pressure to the upper part of said vessel and an outlet conduit extending from the upper part of said vessel to a point within the same, and means for simultaneously moving said outlet conduit vertically and laterally.

5. In a device of the character described, the combination of a vessel, means for charging and discharging the same, and means for supplying air under pressure to said vessel, the discharging means comprising a conduit having an intake opening and adjusting means for maintaining the said intake opening in proximity to the upper surface of the material with which the vessel is charged through substantially all variations in the quantity of said material in the vessel.

6. The process of mixing and discharging concrete, which consists in placing the materials within a closed vessel, supplying air under pressure to the upper part of said vessel above the said materials and causing the said materials to escape upwardly from the body of materials in said vessel and from a point adjacent to the upper surface of said materials.

7. In a device of the character described the combination of a vessel adapted to contain materials, provided with an opening for supplying said materials, means for preventing the contents of the vessel from having egress through said opening, said vessel also provided with means having an outlet or discharge opening, means for causing the pressure within said vessel to exceed the pressure at the said discharge opening and means for adjusting the said means with discharge opening to the level of the materials in said vessel without varying the operative relationship between the said discharge opening and the said means for causing pressure.

8. In a device of the character described, the combination of a vessel adapted to con-

tain materials, provided with an opening for supplying said materials thereto, an outlet or discharge conduit, means for varying the relative pressure in said vessel and discharge conduit, and means whereby a varying vertical relationship between the bottom of said vessel and the intake end of said conduit may be had.

Signed at the city, county and State of New York this 11th day of December, 1912.

ROY L. CANNIFF,
Administrator of the estate of William L. Canniff, deceased.

Witnesses:
S. J. Cox,
A. C. McDonnell.