

(No Model.)

G. F. & H. N. GRAY.
CONCRETE MIXER.

No. 477,361.

Patented June 21, 1892.

Fig. 1.

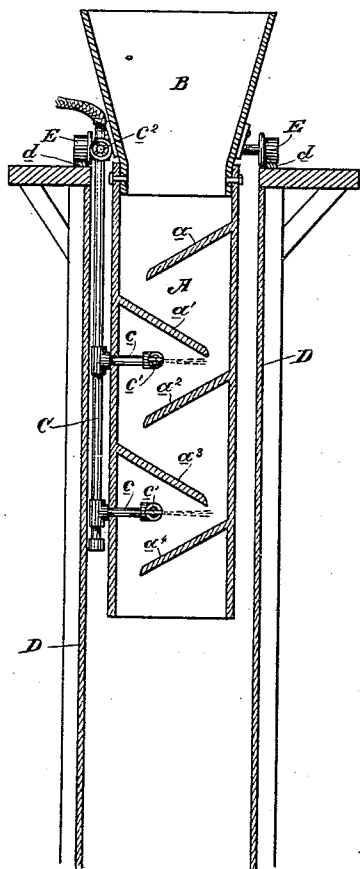
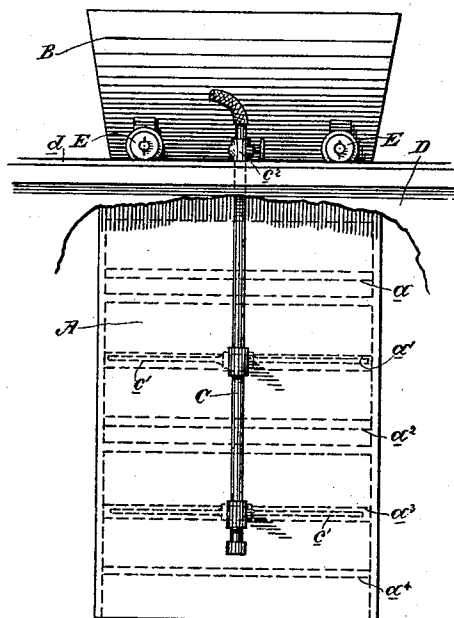


Fig. 2.



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UNITED STATES PATENT OFFICE.

GEORGE F. GRAY AND HARRY N. GRAY, OF SAN FRANCISCO, CALIFORNIA.

CONCRETE-MIXER.

SPECIFICATION forming part of Letters Patent No. 477,361, dated June 21, 1892.

Application filed February 10, 1892. Serial No. 421,013. (No model.)

To all whom it may concern:

Be it known that we, GEORGE F. GRAY and HARRY N. GRAY, citizens of the United States, residing in the city and county of San Francisco, State of California, have invented an Improvement in Concrete-Mixers; and we hereby declare the following to be a full, clear, and exact description of the same.

Our invention relates to the class of apparatus for mixing the ingredients of concrete.

It consists in a vertical box or casing, into the upper end of which the ingredients are deposited and from the lower end of which the mixed material is received, said box or casing containing a vertical series of separated and oppositely-inclined shelves or platforms projecting from opposite sides, whereby material is carried by gravity through a tortuous course, falling from one shelf or platform to the other, whereby it is thoroughly mixed.

It also consists, in connection with said box or casing, of a suitably-arranged water-distributor adapted to direct water upon the material as it falls from shelf to shelf.

It also consists in a box or casing having the series of shelves or platforms, as described, said box or casing being provided with carrying-wheels above, whereby it is adapted to be mounted upon and to lie between the sides of a mold for a retaining-wall and can be moved back and forth therein to deposit the mixed material in said mold throughout its length, all of which we shall hereinafter fully describe, and specifically point out in the claims.

The main object of our invention is to provide a simple and effective automatic mixer for concrete.

The special object is to provide for an easily-movable mixer adapted to operate in such position as to deposit the mixed material during the course of its movement throughout the length of the work to be performed—such, for example, as the construction of a retaining-wall.

Referring to the accompanying drawings for a more complete explanation of our invention, Figure 1 is a vertical section of our concrete-mixer. Fig. 2 is a side elevation of same.

A is a box or casing arranged vertically. It is provided at its top with a suitable re-

ceiving-hopper B, into which material is deposited, and its lower end is open, whereby the mixed material may be received therefrom. 55

Within the box or casing, at its upper portion, is a shelf or platform *a*. This extends from one side thereof and terminates short of the other side. It is downwardly inclined, as shown. From the other side of the casing or box, at a point lower down, is a second shelf or platform *a'*, which is also downwardly inclined, the inclination being opposite to that of the upper shelf or platform, and said second shelf or platform terminates short of the first side. Under this shelf or platform and extending from the first side of the box or casing is a third shelf or platform *a''*, which is similar in inclination to the shelf or platform *a*. Below this is a fourth shelf or platform *a'''*, extending from the second side and parallel with the second shelf or platform, and below this we have shown a fifth platform *a''''*, parallel to the platforms *a* and *a''*. These shelves or platforms, it will be seen, constitute a vertical series of oppositely-inclined shelves or platforms extending from opposite sides of the box or casing. 60 65 70 75

When the material is fed into the hopper B, it falls by gravity in the box or casing and is conducted through a tortuous course from one shelf or platform to another, thereby becoming during its downward course thoroughly mixed. When the box or casing is a stationary one, the mixed material may be received from its lower end in wheelbarrows or other suitable receptacles. 80 85

In order to wet the material during its mixing process, we have secured to the side of the box or casing a water-pipe C, with one end of which a hose connection can be made. From this water-pipe extends into the box or casing one or more branches *c*, which are provided on their inner ends with horizontal sprinkling-pipes *c'*. These sprinkling-pipes may be located in any suitable position to act upon the material as it falls from one shelf or platform to the other. We have here shown two of them, one located in position to discharge the water upon the material as it drops from the shelf *a'* onto the shelf *a''* and the other in position to discharge its water upon the material as it drops from the shelf *a'''* onto the shelf *a''''*. A suitable governing- 90 95 100

cock c^2 may be placed to regulate the water supplied to the pipe C. Thus during the course of the material through the box or casing it is supplied with the necessary water.

5 As before stated, the apparatus may be a stationary one; but in some cases it is advantageous to make it a readily-movable one—as, for example, in the construction of a retaining-wall. We have accordingly illustrated
10 it in this connection.

D represents the side walls of a mold for a retaining-wall. Upon the tops of these side walls are laid suitable tracks d , and the top of the box or casing A is provided with wheels
15 E, which rest upon these tracks. These wheels support the box or casing between the side walls D of the mold.

The material supplied to the box or casing A may thus be continuously discharged into the
20 mold throughout its length by the movement of the box or casing, which is suspended between the walls of the mold. Thus a layer of suitable thickness may be deposited throughout the length of the mold and a second layer
25 deposited upon the first, and so on, by the movement of the box or casing back and forth throughout the length of the mold.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—
30

1. A concrete-mixer consisting of a vertically-arranged box or casing to receive the material at its upper end and deliver it at its lower end, said box or casing containing a

vertical series of oppositely-inclined shelves
35 or platforms projecting from opposite sides thereof and terminating short of the other sides, whereby a tortuous passage is formed within the box or casing, said box or casing being provided with carrying-wheels at its
40 upper portion, whereby it may be suspended from and between the walls of a mold for a retaining-wall and travel thereon back and forth, substantially as herein described.

2. A concrete-mixer consisting of a vertically-arranged box or casing provided with
45 wheels at its upper portion adapting it to be mounted upon and between the side walls of a mold for a retaining-wall and to move back and forth thereon, said box or casing having
50 a vertical series of oppositely-inclined shelves or platforms extending from opposite sides and terminating short of the other sides, whereby a tortuous course or passage is formed
55 for the material, and a water-supply pipe connected with the box or casing and having water-discharges within said box or casing adapted to direct the water upon the material as it falls from one shelf or platform to the other, substantially as herein described. 60

In witness whereof we have hereunto set our hands.

GEORGE F. GRAY.
HARRY N. GRAY.

Witnesses:

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