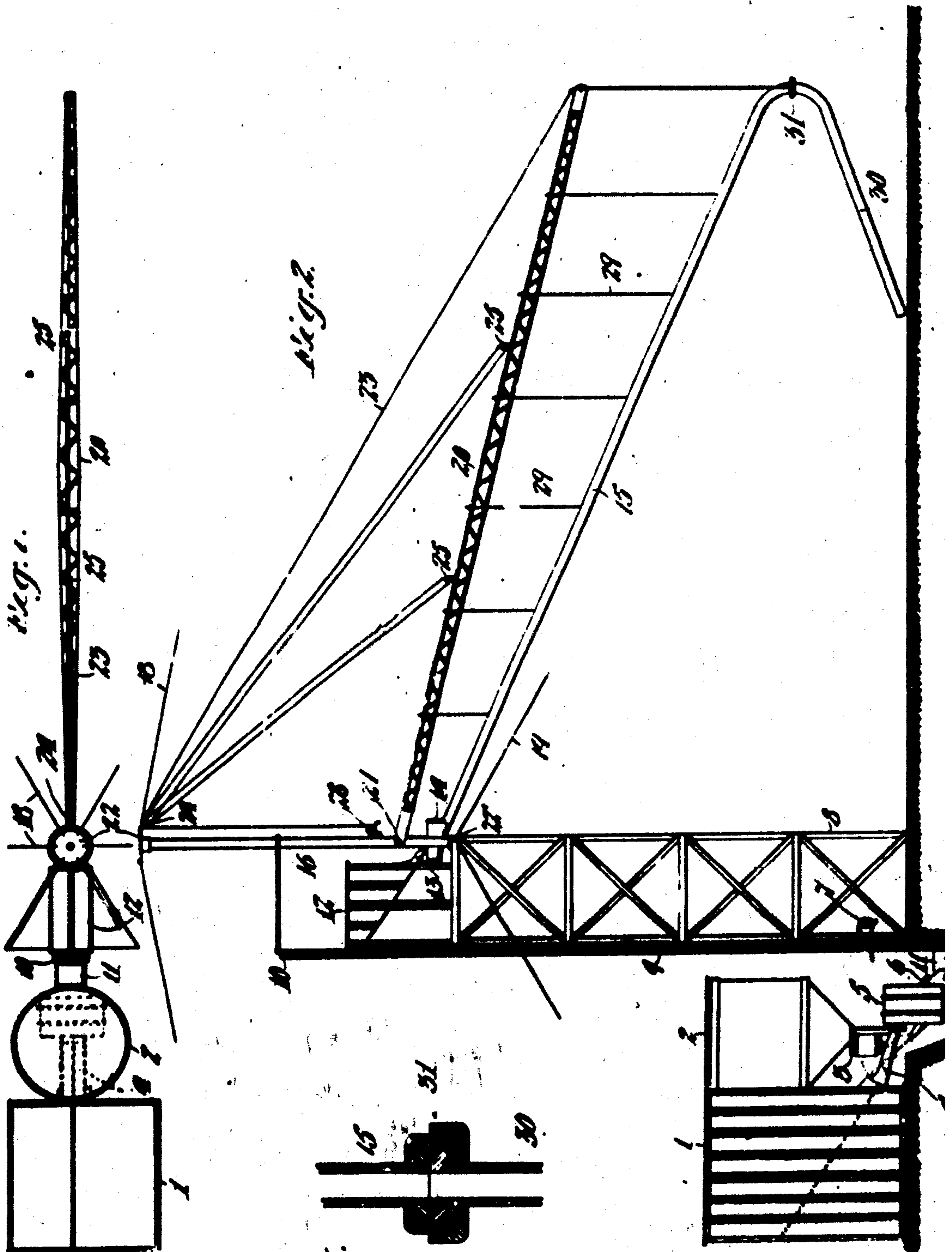


**948,723.**

**Patented Feb. 8, 1910.**



Witnesses:  
Louis W. Galt.  
Franc Labraham

1243.

Interlocutor  
 Theodore Tilton  
 by Jeremiah Lyon & Hackley,  
 his attys.



# UNITED STATES PATENT OFFICE.

THEODORE EMTMAN, OF LOS ANGELES, CALIFORNIA, ASSIGNOR, BY MEANS ASSIGNMENTS, TO CONCRETE APPLIANCES COMPANY, OF ST. LOUIS, MISSOURI, A CORPORATION OF MISSOURI.

## PLANT FOR CONCRETE CONSTRUCTION.

948,723.

Specification of Letters Patent.

Patented Feb. 8, 1910.

Application filed February 17, 1900. Serial No. 478,830.

*To all whom it may concern:*

Be it known that I, THEODORE EMTMAN, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented a new and useful Plant for Concrete Construction, of which the following is a specification.

The object of the present invention is to provide an economical and practical plant for the construction of cement buildings or structures, and it is particularly adapted to the construction of large structures where economy in transportation and pouring of the cement is an important factor in the cost.

The main object of the present invention is to provide a plant whereby the cement can be economically and rapidly delivered to any part of the work or structure.

Another object of the invention is to provide a complete apparatus for performing the entire operation of preparing and delivering the cement or concrete.

Other objects of the invention will appear hereinafter.

The accompanying drawings illustrate my invention.

Figure 1 is a plan of the plant. Fig. 2 is a side elevation thereof. Fig. 3 is a section of the swivel for the delivery pipe.

The plant comprises a preparing apparatus and a delivery apparatus arranged to take the cement or concrete from the mixing apparatus and to deliver it to any desired location over a more or less extended range.

The mixing apparatus comprises a bin 1 for containing sand, gravel, etc., a bin 2 for containing the cement, and a tank 3 for water, a measuring receptacle 4 being provided to take definite portions of sand and gravel from the bin 1 and deliver such portions to the rotary mixer 5, bins 1 and 2 and tank 3 being adapted to deliver the sand or gravel, cement and water to the rotary mixer 5 by gravity. Rotary mixer 5 is of any suitable construction, such as is well known in the art and is provided with an outlet or delivery chute or means 6.

The delivery apparatus comprises an elevator for lifting the concrete to a suitable height to enable it to run to any part of the range of the apparatus by gravity, and a chute taking such concrete from the elevator

and delivering it by gravity to the point desired. A tower or frame 8, which may be built in stages, as shown, so as to enable it to be made of any required height, supports the elevator 9 which may consist of an endless cable or carrier mounted on pulleys 10, carrying a bucket 11, which, in the vertical movement of the carrier, is adapted to pass under the mouth of the delivery chute 6 of the rotary mixer 5, the bucket 11 being then in its lowest position. A hoist or other means 7 is provided for operating the elevator 9. A bin or hopper 12 is provided at the top of the tower 8 in position to receive the contents of the bucket 11 when the latter is carried by the elevator carrier 9 to the top of the hopper 12 and dumped. Said hopper 12 has a delivery chute 13, extending over an open-topped receptacle or mouth 14 at the upper end of the delivery chute 15. Said delivery chute is mounted on a vertical mast 16 to turn horizontally, said mast being supported on the tower 8 and being guided if necessary by lateral guy ropes 18. Guy ropes 19 may also be provided to brace the lower end of the mast 16. A boom or derrick member 20 is pivoted at 21 to said mast 16 so as to turn thereon in a vertical plane and is supported in a proper position by means of a cable 23 passing over pulleys 24, 25, respectively, on the cap-plate 22 at the top of the mast and on the boom said cable forming an extensible connection. The under end of this cable passes to a winch 28 whereby the boom 20 may be raised or lowered as required. Chute 15 is suspended from boom 20 by any suitable means, for example, by suspension rods 29. To the lower end of the chute 15 is connected a delivery pipe 30 having a swivel connection 31 with the chute or pipe 15 so that the pipe 30 can be swung around on a horizontal plane. The delivery apparatus is capable of the following movements to enable it to cover an extended vertical and horizontal range. In a horizontal plane the means 16 together with the boom and the delivery means 30 carried thereby may be turned in a horizontal plane by the rotation of the mast in the cap plate 22 and the step-bearing 22' at the bottom thereof. The pipe 30 may be swung in a horizontal plane by turning on its swivel 31 so as to distribute the cement in a particular part of the work or construction,



within a radius equal to the projection of the delivery pipe when fully extended.

The plant is operated as follows:—Sand or gravel from bin 1, cement from bin 2, and water from tank 3 are charged intermittently by means of device 4 to the rotary mixer 5, by the operation of which these ingredients are mixed to form the concrete. The bucket 11 of the elevator is brought repeatedly to lowermost position to receive the mixed concrete and the concrete having been dumped thereinto the bucket is raised by the elevator to the top of the tower and its contents are discharged into the bin 12, whence such contents pass by gravity into the chute 15 and down said chute and through the delivery pipe 30 to the outlet of said pipe. By turning said pipe 30 in its swivel 31; the cement is distributed over the part of the work that is being operated upon for the time being. When it is desired to shift the operation from one part of the structure to another the chute 15 can be swung on the mast 16 as a center. As the construction progresses the chute 15 may be raised by means of the devices 23, etc. to keep pace with the elevation of the structure, the upper end of chute 15 fitting sufficiently loose on the mast 16 to permit of this movement, and the enlarged mouth at the upper end of the chute maintaining its proper relation for receiving concrete from the bin 12.

What I claim is:—

1. A plant for concrete construction comprising an elevator provided with means for receiving and raising concrete, a chute adapted to receive the concrete raised by the elevator and to deliver the same by gravity, a mast mounted to rotate on a vertical axis, a chute pivoted to said mast and extending therefrom at an inclination to feed the concrete by gravity, and a boom supporting said chute and having extensible connection with the mast to vary its vertical position.

2. A plant for concrete construction comprising an elevator provided with means for receiving and raising concrete, a chute adapted to receive the concrete raised by the elevator and to deliver the same by gravity, a mast mounted to rotate on a vertical axis, a chute pivoted to said mast and extending therefrom at an inclination to feed the concrete by gravity, a boom supporting said chute and having extensible connection with the mast to vary its vertical position, and a delivery pipe swiveled to the lower end of said chute to turn it to different angular positions.

In testimony whereof, I have hereunto set my hand at Los Angeles, California, this 6th day of February 1909.

THEODORE EMTMAN.

In presence of—

G. T. HACKLEY,  
FRANK L. A. GRAHAM.