No. 831,658. PATENTED SEPT. 25, 1906.

H. ERICSSON.

CONCRETE MIXER.

APPLICATION FILED MAR. 24, 1905.

2 SHEETS—SHEET 1.

Fig. 1.

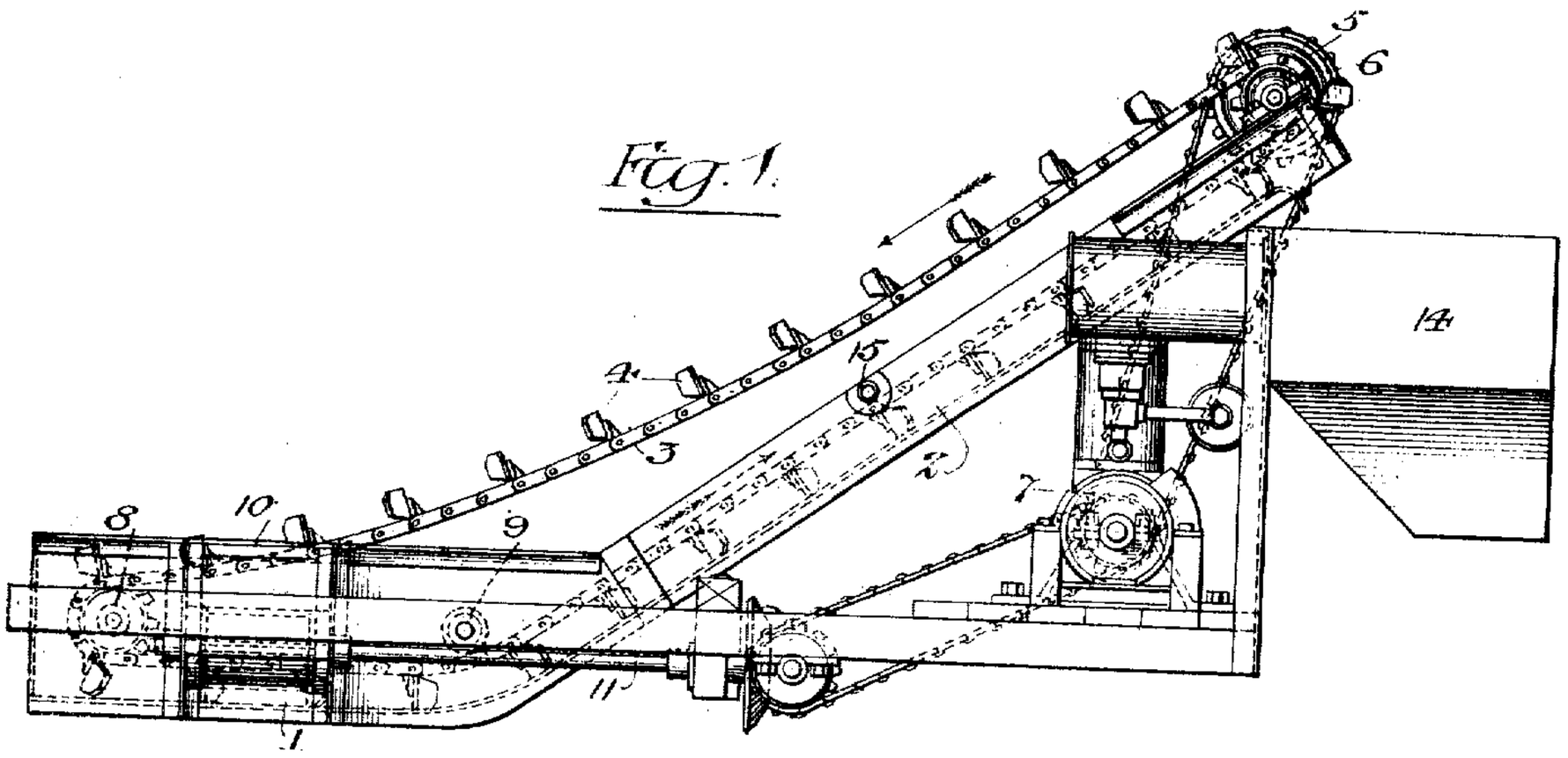

Fig. 2.

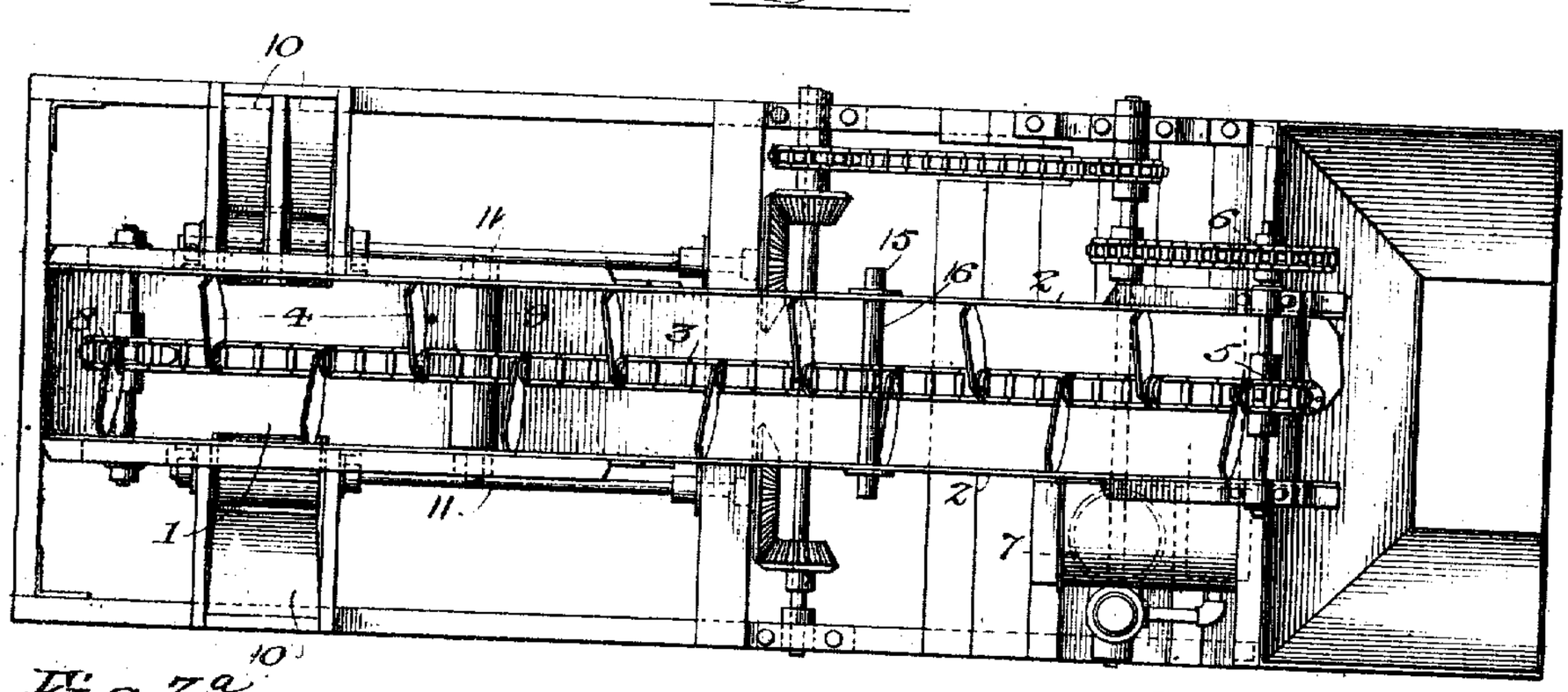

Fig. 3a.

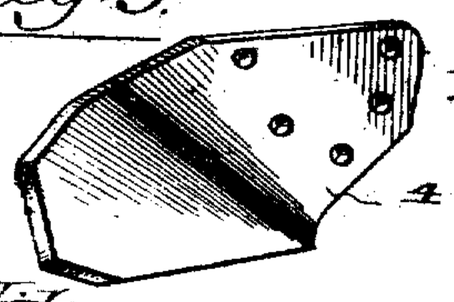

Fig. 3.

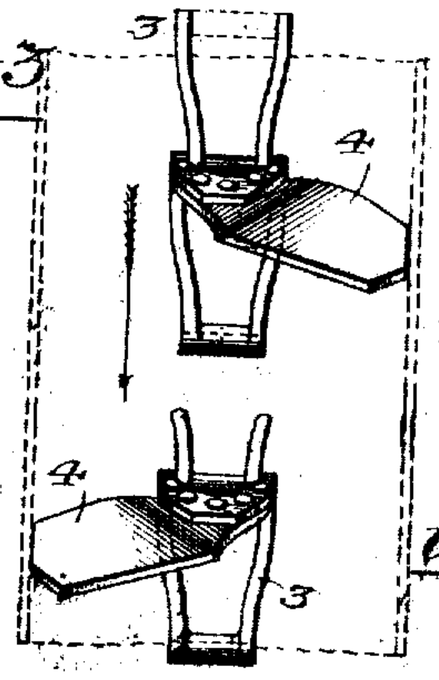

Fig. 3b.

Witnesses:

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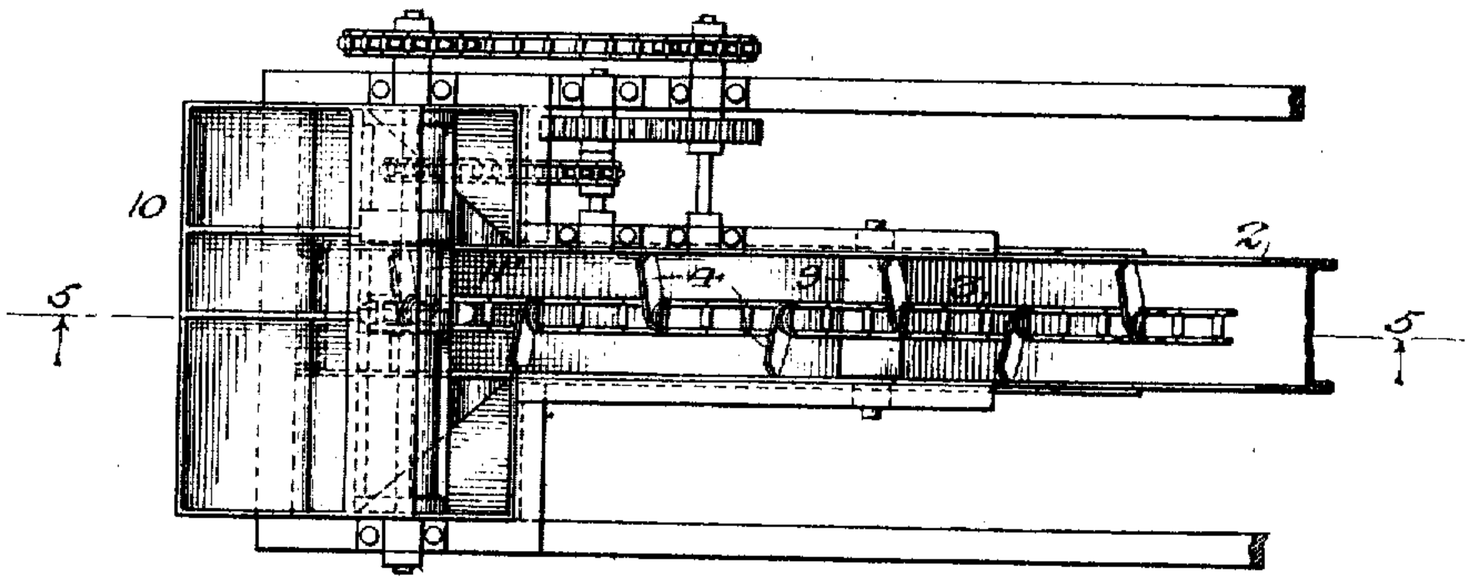
2 SHEETS—SHEET 2.

Fig. 4.



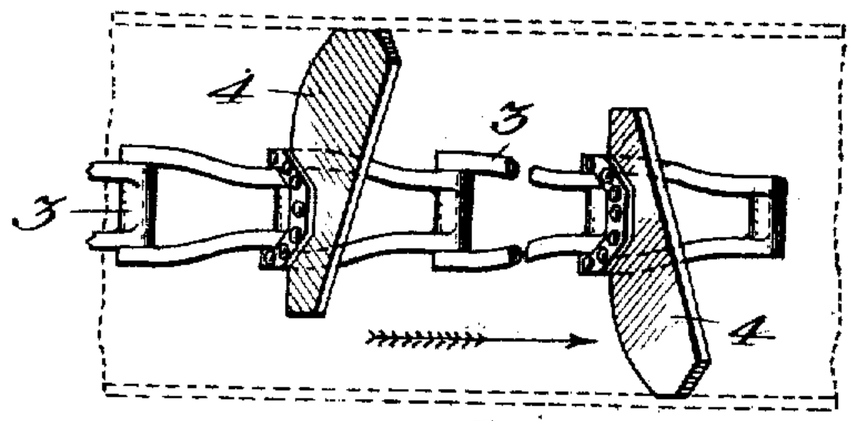
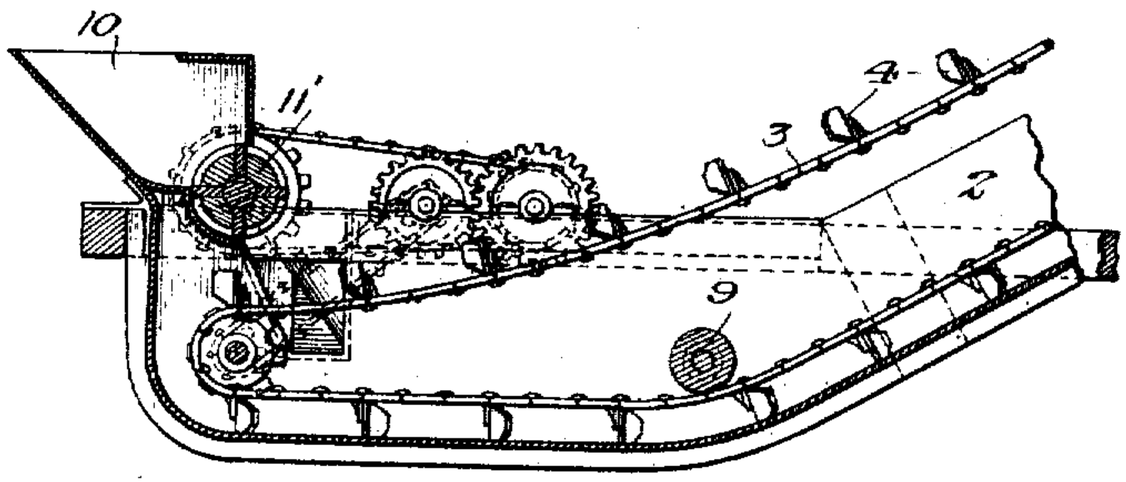


Fig. 6.

Fig. 5.



Witnesses:-
Louis W. Whitehead
Charles I. Cobb

Inventor
Henry Ericsson
by:- Hill & Hill
Attys

UNITED STATES PATENT OFFICE.

HENRY ERICSSON, OF CHICAGO, ILLINOIS.

CONCRETE-MIXER.

No. 831,658. Specification of Letters Patent. Patented Sept. 25, 1906.

Application filed March 24, 1905. Serial No. 251,895.

To all whom it may concern:

Be it known that I, HENRY ERICSSON, a citizen of the United States, residing at Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Concrete-Mixers, of which the following is a description.

My invention relates to that class of devices adapted for the intimate association of the several ingredients entering into the composition of concrete or similar substances.

The object of my invention is to produce a simple, convenient, and efficient device of the kind described in which the materials are received at and discharged from portions of the device so located as to reduce the expense of handling to a minimum.

To this end my invention consists in the novel construction, arrangement, and combination of parts herein shown and described, and more particularly pointed out in the claims.

In the accompanying drawings, wherein like or similar reference characters indicate like or corresponding parts, Figure 1 is an elevation of my device. Fig. 2 is a plan view of my device as shown in Fig. 1. Fig. 3 is an enlarged view of portions of a sprocket-chain with one of mixing-plows attached to each portion to show the form of the plows and their relative arrangement upon the driving mechanism. Figs. 3^a and 3^b are enlarged details of the plows. Fig. 4 is a plan view of a portion of my device, showing a modified construction. Fig. 5 is a section taken substantially on line 5 5 of Fig. 4. Fig. 6 is a view similar to Fig. 3, but showing a modified form of plow.

In the form of my device shown in the drawings the mixing-trough consists of an inclined section 2 and a horizontal extension 1, suitably connected to form a continuous way for the carrier 3 and plows 4. The carrier 3 may consist of any of the well-known types of chain or equivalent means for the purpose and may be driven in the usual manner by a head or driving-wheel 5, mounted upon a shaft 6, driven by any suitable means from a motor or other source of power 7.

The foot or tail wheel 8 is preferably simply an idler to maintain a suitable tension in the carrier and for this purpose may, if desired, be provided with means for adjusting its horizontal position. In the form shown in Fig. 1 a second idler 9 is preferably positioned to guide the carrier 3 at the intersection of the parts 1 and 2 of the trough, and thus insure the plows traveling in the desired relation to the trough-bottom.

The plows or mixers 4 (see Fig. 3) each consists of a curved plate of suitable material formed to extend from substantially the center to one side of the trough and attached to the carrier 3 in the usual or any preferred manner, so that the successive plows will extend toward the opposite sides of the trough, each plow being so formed that its parts adjacent the bottom and at the sides of the trough are considerably in advance of the part attaching to the chain, so that each plow presents an inclined surface to the material in the trough and tends to pass beneath or raise the material it encounters and move it toward and beyond the center of the trough. In operating upon some kinds of material it may be desirable to have each plow-blade extend slightly beyond the center of the trough, so that each blade may move the material a greater distance laterally.

Any suitable means may be employed for measuring the substances entering into the mixer and delivering the same into the part 1 of the trough to be operated upon by my mixer. In my preferred construction, however, I provide an automatic proportioning-machine 10 10, described in my United States Letters Patent No. 783,186, dated February 21, 1905, for this purpose.

In the form shown in Figs. 1 and 2 parts of the proportioning-machine 10 10 are arranged at opposite sides of the part 1 of the trough, power being communicated to the mensuring-pockets by means of the shafts 11 11, driven by suitable mechanism from the motor 7.

In the form shown in Figs. 4 and 5 the proportioning-machine 10 10 is positioned across the end of the part 1 of the trough, and suitable spouts 12 are arranged to direct the material measured into the trough, a single shaft 11′, driven by suitable intermediate mechanism from the motor 7, being provided to operate the measuring-pockets. Obviously in this form the horizontal portion 1 of the trough may be dispensed with and the material delivered directly into the inclined part 2, if preferred.

As shown, a hopper 14 is provided, into which the mixed materials are discharged from the trough 2 and from which the mixture may be withdrawn as required. Where it is desirable to wet materials being mixed,

a pipe 15, with preferably one end closed and having a series of lateral openings 16, may be arranged at any point above the trough and attached, by means of a section of hose or other piping, to a suitable supply of water, so that the material as it passes under the pipe 15 may be sprayed or sprinkled to the desired extent.

In operation the several substances are placed in their respective hoppers of the proportioning-machine of my device by which they are accurately measured and discharged into the trough, where the plows 4 carry them slowly forward, at the same time rolling the material over and over and moving it from side to side of the trough, where it passes under the pipe 15. It may have the desired amount of water added, the mixing process continuing until the material is discharged from the upper end of the trough into the hopper 14, from which it may be drawn as required, or directly upon the foundation or other point where it is to be used, as the material when it leaves the upper end of the trough should be in just the correct condition for tamping into place.

It will be observed that the top of the receiving-hoppers may be arranged close to the ground or working-level, so that the materials may be readily dumped into them from wheelbarrows or other means of transportation or shoveled or otherwise thrown into them by the expenditure of the least amount of labor and time. The discharge end of the mixer, however, may be at a considerable elevation, so that the mixture may be received into wheelbarrows, carts, or other receivers, or, if desired, any of the well-known means may be employed, so that the material may be distributed over a considerable surface without rehandling.

Having thus described my improvement, it is obvious that various immaterial modifications may be made in my device without departing from the spirit of my invention. Hence I do not wish to be understood as limiting myself to the exact form or construction shown.

What I claim as new, and desire to secure by Letters Patent, is—

1. A device of the kind described, comprising a trough, in combination with a plurality of plows extending from alternate sides thereof toward the opposite side, and inclined backward from the bottom and adjacent sides of the trough, means for moving said plows longitudinally of said trough, and means for directing material into said trough.

2. A device of the kind described, comprising an endless movable carrier provided with a plurality of plows alternately projecting from its opposite sides, the operating surfaces of each plow being formed to present an inclined surface to the materials operated upon whereby said material will tend to move toward said carrier, and means for supporting and driving said carrier, in combination with a trough in which said plows are arranged to operate, and means for directing materials into said trough.

3. A device of the kind described, comprising a trough, and carrying means arranged to move longitudinally of the trough, in combination with a series of plows operated by said carrying means, alternately extending from the edges toward the opposite side of said trough and inclined backward from the adjacent side thereof toward the center, and means for directing material into said trough.

4. A device of the kind described, comprising a trough, and carrying means arranged to move longitudinally of said trough, in combination with a series of plows operated by said carrying means, alternately extending from each side of said trough toward the opposite side, and inclined backward from the bottom toward the top of said trough and means for directing material into said trough.

5. A device of the kind described, comprising a trough, a series of plows positioned within said trough extending alternately from the sides thereof toward the opposite side, and inclined backward from the sides and bottom toward the center and top of said trough, means for moving said plows longitudinally of said trough, and means for directing material into said trough.

6. A device of the kind described, comprising an endless movable carrier provided with a plurality of plows alternately projecting from its opposite sides the face of each plow being inclined forward from said carrier, and means for supporting and driving said carrier, in combination with an inclined trough, in which said plows are arranged to operate, means for directing materials into said trough, and means for spraying a liquid onto the materials passing through said trough.

7. A device of the kind described, comprising an endless movable carrier provided with a plurality of plows projecting alternately from its opposite sides the face of each plow being inclined forward from said carrier, and means for guiding and driving said carrier, in combination with a trough in which said plows are arranged to operate, and means for simultaneously directing a plurality of ingredients into said trough.

8. A device of the kind described, comprising an endless movable carrier provided with a plurality of plows alternately projecting from its opposite sides the face of each plow being inclined forward from said carrier, and means for guiding and driving said carrier, in combination with a trough in which said carriers are arranged to operate, means for simultaneously directing a plurality of ingredients into said trough, and means for spraying a liquid onto the materials passing through said trough

9. A device of the kind described, comprising an endless movable carrier provided with a plurality of plows alternately projecting from its opposite sides, and means for guiding, supporting, and driving said carrier, in combination with a trough in which said plows are arranged to operate, the operating-surface of each plow being inclined to both the bottom and sides of said trough whereby the materials operated upon will tend to move toward said carrier, and means for simultaneously directing a plurality of ingredients into said trough.

10. A device of the kind described, comprising an endless movable carrier provided with a plurality of plows alternately projecting from its opposite sides, and means for guiding, supporting, and driving, said carrier, in combination with a trough in which said plows are arranged to operate, the operating-surface of each plow being inclined to both the bottom and sides of said trough whereby the materials operated upon will tend to move toward said carrier, means for simultaneously directing a plurality of ingredients into said trough, and means for spraying a liquid onto the materials passing through said trough.

11. A device of the kind described, comprising an endless movable carrier provided with a plurality of plows projecting alternately from its sides, and means for supporting, guiding, and driving said carrier, in combination with a trough in which said plows are arranged to operate the operating-surface of each plow being backwardly inclined from the bottom and adjacent sides of said trough, whereby the material tends to be raised from the trough-bottom and successively move past the center toward the opposite side of said trough, means for simultaneously directing a plurality of ingredients into said trough, and means for spraying a liquid onto the material passing through said trough.

In testimony whereof I have hereunto signed my name in the presence of two subscribing witnesses.

HENRY ERICSSON.

Witnesses:
BURTON U. HILLS,
CHARLES I. COBB.

Corrections in Letters Patent No. 831,658.

It is hereby certified that in Letters Patent No. 831,658, granted September 25, 1906, upon the application of Henry Ericsson, of Chicago, Illinois, for an improvement in "Concrete-Mixers," errors appear in the printed specification requiring correction, as follows: On page 2, line 17, a comma should be substituted for the period after the reference-numeral "15," and the following word "It" should commence with a small *i* instead of a capital; and that the said Letters Patent should be read with these corrections therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 16th day of October, A. D., 1906.

[SEAL.]

F. I. ALLEN,
Commissioner of Patents.

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