No. 892,399. PATENTED JULY 7, 1908.

J. CARLEN.

CONCRETE MIXER.

APPLICATION FILED MAY 24, 1907.

Fig. 1.

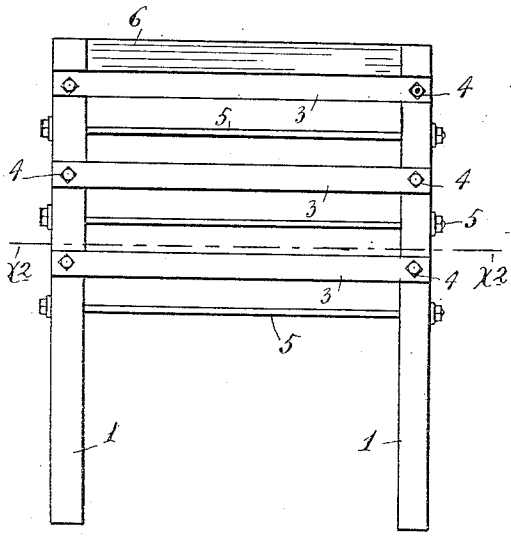


Fig. 3.

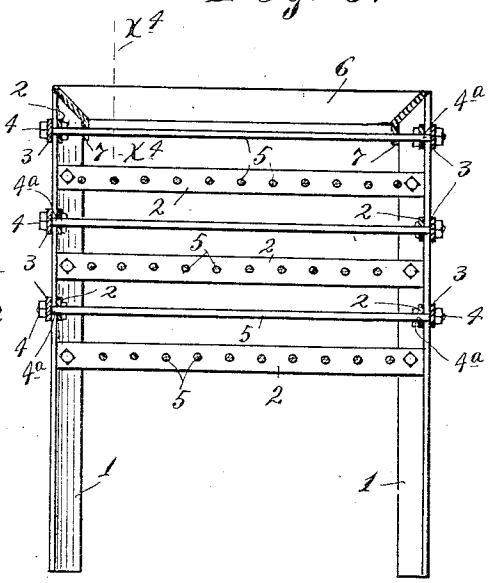


Fig. 4.

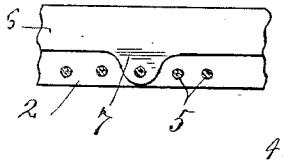
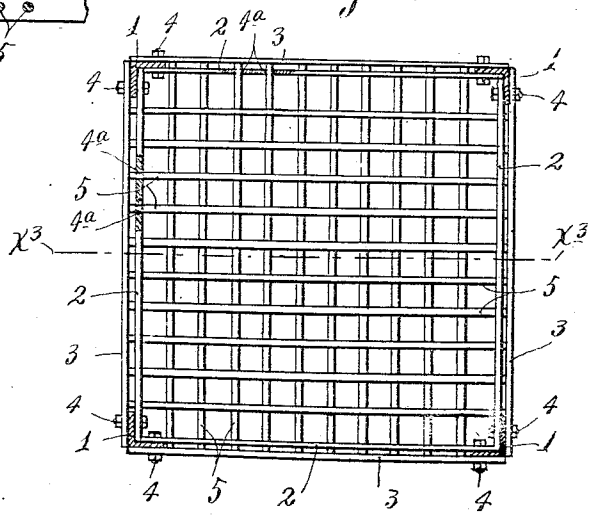


Fig. 2.



Witnesses.
Harry Opsahl.
L. L. Simpson.

Inventor.
John Carlen.
By his Attorneys
Williamson & Merchant

UNITED STATES PATENT OFFICE.

JOHN CARLEN, OF HAVANA, NORTH DAKOTA.

CONCRETE-MIXER.

No. 892,399. Specification of Letters Patent. Patented July 7, 1908.

Application filed May 24, 1907. Serial No. 375,415.

To all whom it may concern:

Be it known that I, JOHN CARLEN, a citizen of the United States, residing at Havana, in the county of Sargent and State of North Dakota, have invented certain new and useful Improvements in Concrete-Mixers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention has for its object to provide a simple and efficient device for mixing cement with sand, gravel or broken rock, as required in making concrete mixtures, and to the above ends the invention consists of the novel devices and combinations of devices hereinafter described and defined in the claims.

The improved device is illustrated in the accompanying drawings, wherein like characters indicate like parts throughout the several views.

Referring to the drawings, Figure 1 is a view in side elevation showing the improved mixer. Fig. 2 is a horizontal section taken on the line x^2 x^2 of Fig. 1. Fig. 3 is a vertical section taken on the line x^3 x^3 of Fig. 2; and Fig. 4 is a detail in section taken on the line x^4 x^4 of Fig. 3, some parts being broken away.

The frame of the machine is made up of angular corner posts 1, that are rigidly connected by inner and outer flat metal tie bars 2 and 3. The inner and outer tie bars 2 and 3 are arranged in parallel pairs, and their ends are rigidly clamped to the flanges of the corner posts 1 by means of short nutted bolts 4, and by the interposed flanges of said corner posts are slightly spaced apart. As shown, three pairs of these parallel bars are secured to each side of the frame, and the bars that are transversely opposite to each other are at the same altitude, while the bars that extend at right angles to each other are offset in alternate order. The inner bars 2 are perforated to form seats 4^a and to pass therethrough the ends of the deflecting rods 5. These deflecting rods 5 are arranged in horizontally disposed series, there being, as shown, six series thereof, the rods of three of the series extending in one direction and the rods of the other three series extending at right angles thereto. The ends of the rods 5, which are passed through the inner bars 2, abut against the horizontally alined outer bars 3, and by the latter are held in working positions against endwise movements. The rods of the several series are preferably spaced the same distance apart, but the rods of the several series that extend in the same direction are offset laterally, with respect to vertical planes, so that the rods of the lower series are distributed in the spaces included between vertical planes drawn through the rods of the upper series. For instance, if the spacing between the parallel rods is one inch and a half, and there are three vertically spaced parallel series of rods, the rods of the series second from the top will be offset laterally one-half an inch from the rods of the uppermost series, and the rods of the lowermost series will be offset one-half inch more in the same direction. The relative amount of offset given to these parallel rods of the several vertically spaced series is made clear by the vertical dotted lines drawn on Fig. 3.

As is evident, by the arrangement of the rods above described, the greatest possible efficiency thereof is obtained, and any material dropping between the rods of an upper series will be divided a maximum number of times by the underlying rods. It will, of course, be understood that the material in passing through the alternated series of parallel rods will be divided first in one direction and then in the other, thus further insuring complete and thorough mixing of the material.

The annular upper ends of the corner posts 1 support a rectangular hopper 6 that is arranged to guide the material that is to be mixed onto the uppermost series of parallel rods 5. To hold this hopper in working position, it is provided at two sides with depending ears 7 through which one of the rods 5 of the uppermost series is extended, as shown in Figs. 3 and 4. Hence, to remove the hopper, it is necessary to remove one of the uppermost outer bars 3 and then to withdraw the rod 5 which is passed through the ears 7 of the said hopper.

In practice, the cement may be thrown loosely on top of the sand, gravel or rock with which it is to be commingled, and the several materials, by means of a shovel or other device, may be thrown onto the upper series of deflecting rods 5. These materials will fall rapidly through the spaces between the several series of deflecting rods and in their descent will be alternately cut

into sheets first in one direction and then in the other, and will be thoroughly commingled under this action.

The device described, while simple and of small cost, has, in practice, been found highly efficient for the purposes had in view. Furthermore, it may be very easily knocked down or taken apart, and again set up or put in operative position. This adapts the device to be shipped in compact form and to be readily set up where it is to be used.

What I claim is:—

1. In a mixing device of the kind described, the combination with a frame made up of corner posts and transversely opposite tie bars arranged in pairs, of parallel deflecting rods arranged in vertically spaced series with their ends extended through the alined inner tie bars and held against endwise movements by the coöperating outer tie bars, substantially as described.

2. The combination with a frame made up of angular corner posts and tie bars arranged in pairs and detachably clamped to the flanges of said corner posts, and the parallel series of deflecting rods arranged in vertically spaced rows with their inner ends extended through perforations in the coöperating inner tie bars and held against endwise movements by the coöperating outer tie bars, substantially as described.

3. The combination with a frame made up of corner posts and tie bars, of parallel deflecting rods arranged in vertically spaced series, and a hopper supported by the upper ends of said corner posts and provided with depending ears through which one of the deflecting rods of the upper series is passed, substantially as described.

4. In a device of the kind described, the combination with a frame made up of detachably connected corner posts and tie bars, of parallel deflecting rods arranged in vertically spaced series and detachably held in working positions by said tie bars, and a hopper supported by said corner posts and detachably held in working position by one of said deflecting rods, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN CARLEN.

Witnesses:
JOHN POWERS,
W. C. MURPHY.