

No. 617,425.

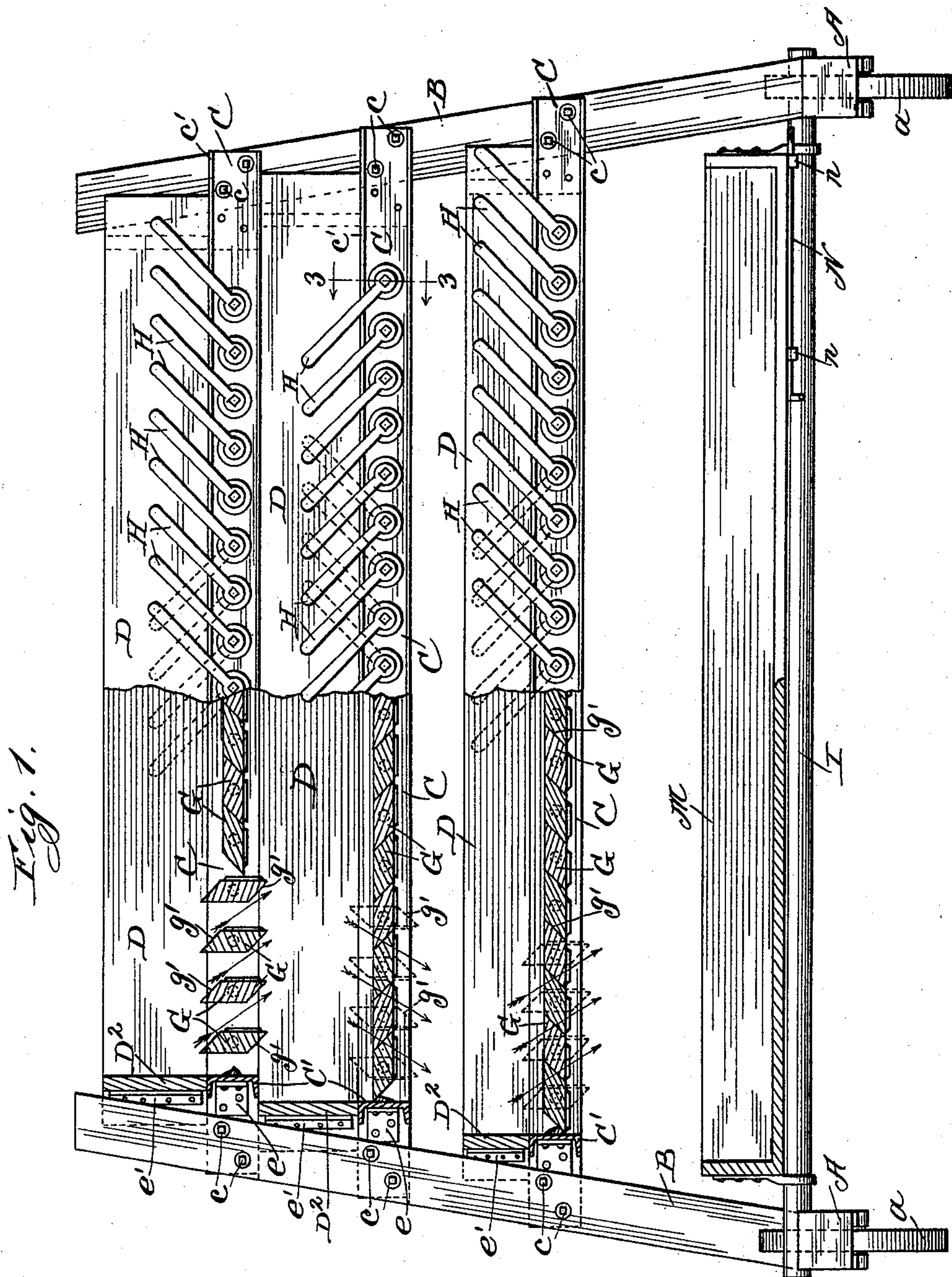
Patented Jan. 10, 1899.

W. M. RILEY.
CONCRETE MIXER.

(Application filed Aug. 22, 1898.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses:
R. J. Jacker,
E. A. Duggan.

Inventor:
William M. Riley.
By Chas. C. Gillman Atty.

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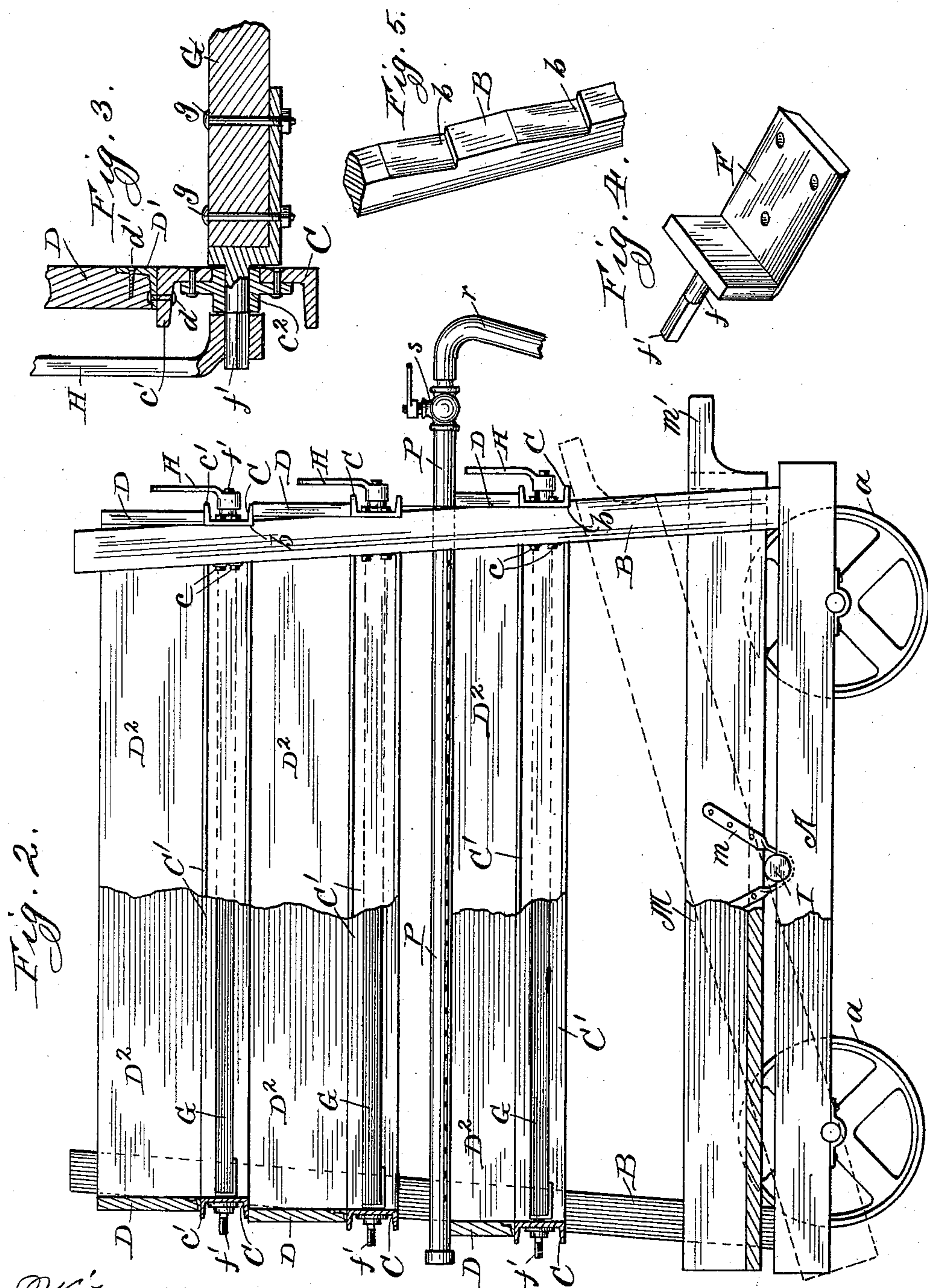
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W. J. Jacker.
E. A. Duggan.

Inventor:
William M. Riley
By Chas. C. Pittman
Atty.

UNITED STATES PATENT OFFICE.

WILLIAM M. RILEY, OF CHICAGO, ILLINOIS.

CONCRETE-MIXER.

SPECIFICATION forming part of Letters Patent No. 617,425, dated January 10, 1899.

Application filed August 22, 1898. Serial No. 689,193. (No model.)

To all whom it may concern:

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

This invention relates to improvements in an apparatus to be used for mixing crushed stone, sand, and cement to form what is known as "concrete;" and it consists in certain peculiarities of the construction, novel arrangement, and operation of the various parts thereof, as will be hereinafter more fully set forth and specifically claimed.

The objects of my invention are, first, to provide a concrete-mixer which shall be simple and inexpensive in construction, strong, durable, and effective in operation, and, second, an apparatus for mixing crushed stone, sand, and cement or other materials which by reason of its peculiar construction and the operation of its parts will afford a means of mixing a large quantity of material in a short period of time and in a most thorough and satisfactory manner.

Another object of my invention is to so construct the apparatus that its parts may be readily detached or assembled, and which is capable of being operated by one or more persons in such a manner that no delay in the operation of depositing the materials to be mixed is occasioned.

In order to enable others skilled in the art to which my invention pertains to make and use the same, I will now proceed to describe it, referring to the accompanying drawings, in which—

Figure 1 is a longitudinal sectional view, partly in elevation, of the mixer, showing the construction of the boxes or receptacles for the material and illustrating the position that some of the slats forming the bottoms of said receptacles will occupy when the material is being shifted from one box or receptacle to another. Fig. 2 is an end view, partly in section and partly in elevation, of the mixer, illustrating by dotted lines the position that the lower or dumping receptacle will occupy when the concrete is being discharged therefrom and showing a pipe and its connection for supplying water to the mixed material.

Fig. 3 is an enlarged sectional view, taken on line 3 3 of Fig. 1, of a portion of one of the boxes or receptacles, a part of one of the slats comprising a portion of the body of said box or receptacle, and the lever or crank for turning the same. Fig. 4 is a perspective view of one of the brackets used for holding the slats, and Fig. 5 is a perspective view of a portion of one of the standards.

Similar letters refer to like parts throughout the different views of the drawings.

The supporting-frame of my mixer is composed of two horizontal pieces or beams A and four uprights or standards B, which are secured to the beams or pieces A near their ends, and are slightly inwardly inclined, as shown in the drawings. For the convenience of moving the mixer from one place to another the frame may be mounted on suitable wheels a, which may be journaled on the pieces A, near their ends. The outer side surface of each of the standards B is provided at proper points with recesses b to receive and support the beams C, which are preferably made of channel-iron and extend longitudinally from the front standards B to the rear ones and are secured thereto by means of suitable bolts c or otherwise. By reference to Figs. 2 and 5 of the drawings it will be seen that the recesses b are formed in the standards B in such a manner that the sides of the beams C will occupy a vertical position instead of being inclined and that the upper flanges c' of said beams will lie in a horizontal position, to which the side boards D, forming a portion of the boxes or receptacles for the material, are secured, preferably by means of an angle-iron D' and bolts d and d', the former of which pass through the upper flanges c' of the beams C and the latter into the side boards, as shown in Fig. 3 of the drawings. Extending across each end of the main or supporting frame of my apparatus and secured at their ends by means of brackets e are transverse beams C', preferably of channel-iron, on the upper flanges of which rest the end boards D², which constitute a portion of the boxes or receptacles for the material and are secured to the side boards D by means of suitable brackets e' or otherwise. Each of the beams C is formed with a number of openings c² for the reception and retention of the

shafts *f* on the brackets *F*, to which the slats *G* are secured by means of bolts *g*, passing through the slats and suitable openings in the brackets. The outer portions of the shafts *f* are formed square in cross-section, as shown at *f* or of a shape other than circular to receive the levers or crank-arms *H*, whose lower ends are formed with openings of a shape to correspond with the form of the outer portion of said shafts. The slats *G* constitute the bottom of the boxes or receptacles for the material and have their edges formed with bevels *g'*, so that when they lie in a flat position the bottom of the boxes or receptacles will be tightly closed, as is clearly shown in Fig. 1 of the drawings, but when they are turned to a vertical position, as some of them are shown in the upper box or receptacle in Fig. 1, their upper beveled edges will be presented to the material within the box or receptacle, thus allowing the material to pass therefrom into the box below without hindrance. The slats *G* are so arranged that the bevels *g*, thereof in each alternate box will have an opposite inclination, as shown by dotted lines in Fig. 1 of the drawings, thus causing a more thorough mixing of the material as it passes from one box to another, as will be presently explained.

Extending from one of the beams *A* to the other and located at about their middle is a shaft *I*, on which rests and is secured, by means of suitable straps *m* or otherwise, a box or receptacle *M*, which is designed to receive the material after it shall have been thoroughly mixed and saturated with water, and from which the concrete may be dumped to the ground or floor, which is done by raising one end of the box or receptacle *M*, which end is provided with hand pieces *m'* for this purpose, the other end of the box being open, so that the concrete may slide therefrom when the box is raised to the position indicated by dotted lines in Fig. 2 of the drawings. To prevent this box tilting on the shaft *I* until it is desired that it shall do so, I provide it at one of its ends with a sliding bar *N*, which is held in position by means of suitable socket-pieces *n*, secured to the lower surface of the box. By forcing this bar forwardly it is evident that its outer end will engage or rest on one of the beams *A*, and thus firmly hold the box in a horizontal position. Movably located between the two lower mixing-boxes is a perforated pipe *P*, to which is connected one end of a hose *r*, whose other end is connected to a hydrant or other source of water-supply. The pipe *P* is provided with a cock *s* to regulate the flow of water there-through, and in wetting the material within the box on which it rests it is apparent that the pipe may be slid back and forth until the required consistency of the material is obtained.

In the drawings I have shown my mixer provided with three mixing boxes or recep-

tacles and one tilting or dumping box or platform, and it is evident that I may employ as many mixing boxes as desired without departing from the spirit of my invention.

The operation of my mixer is simple and as follows: The slats *G*, forming the bottom of the mixing boxes or receptacles are turned so as to lie in a flat position, thus providing a closed bottom for each of the boxes. A quantity of crushed stone is then placed in the upper box or receptacle and on top of this a quantity of sand, which is evenly leveled, after which the desired amount of cement is evenly spread over the sand. The levers or crank-arms *H* controlling the slats of the upper box are then moved from the inclined position shown by continuous lines to the position illustrated by dotted lines, which operation will present the beveled edges of the slats to the material in the upper box and at the same time provide open spaces between the slats, through which the material may pass into the box below, from which it may be discharged by turning its slats by means of the levers *H*, connected to either end thereof, into the box below, in which box the material may be thoroughly saturated with the water supplied thereto through the medium of the perforated pipe *P*, which is preferably used for the reason that such a pipe enables the material to be uniformly sprinkled or wet, after which it may be deposited into the dumping or tilting box or receptacle *M* by turning the slats of the watering-box.

By reference to Fig. 1 of the drawings it will be seen that the slats forming the bottom of the boxes or receptacles are beveled so as to have an opposite inclination in each alternate box, so that when the material passes from the upper box to the next one below it it will have a movement in one direction and when passing from the second box to the third it will be given an opposite movement, and so on throughout the series of boxes, thus causing a more thorough mixing of the material.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

The combination with the main or supporting frame, of a series of boxes supported thereby one above the other, a series of beveled slats pivotally secured to the sides of the boxes to form bottoms therefor, levers or crank-arms connected to the ends of the slats to turn the same, the said slats of each alternate box being beveled in an opposite direction, substantially as described.

Signed at Chicago, Illinois, this 11th day of August, A. D. 1898.

WILLIAM M. RILEY.

Witnesses:

CHAS. C. TILLMAN,
E. A. DUGGAN.