

(No Model.)

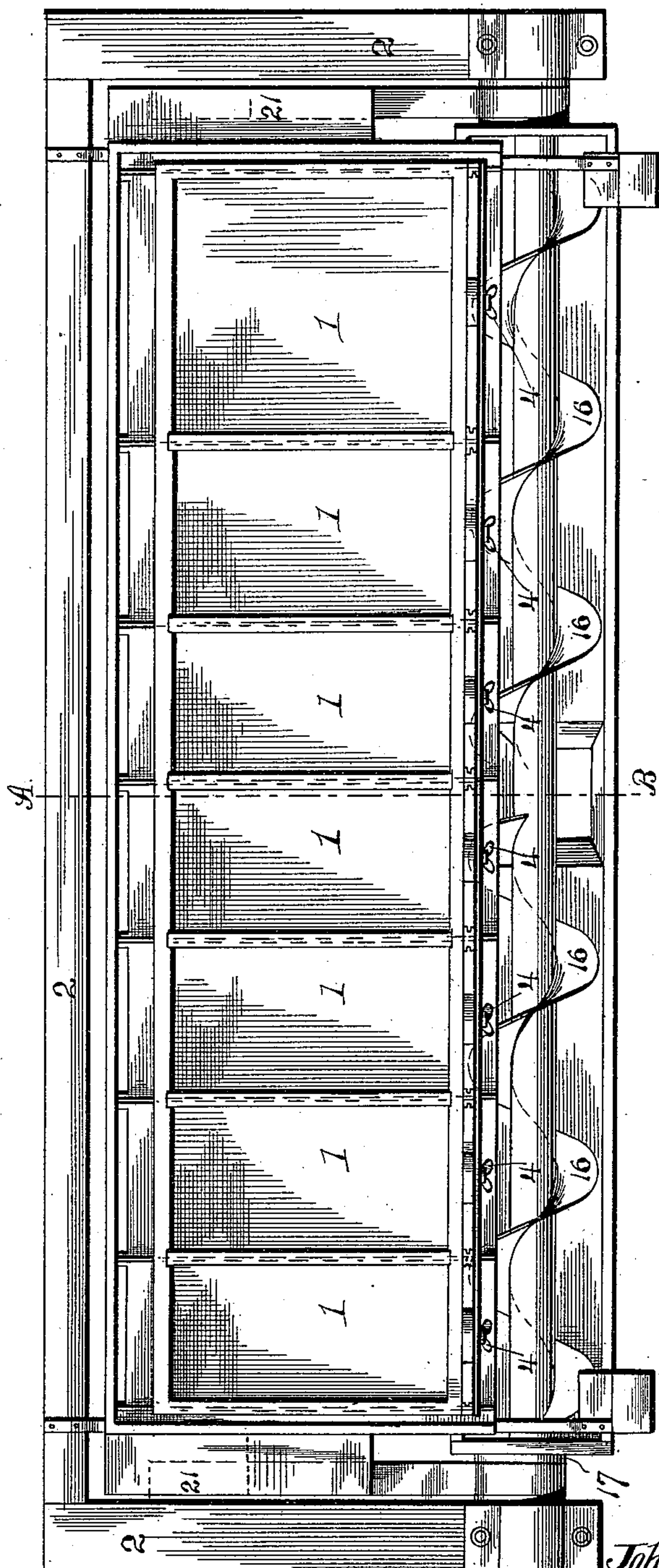
2 Sheets—Sheet 1.

J. FENIMORE.  
COMBINATION FEEDER AND MIXER.

No. 550,912.

Patented Dec. 3, 1895.

Fig. 1.



Inventor

John Fenimore.

Witnesses

John Fenimore  
Walter E. Allen.

By

*Knight & Co.* his Attorneys

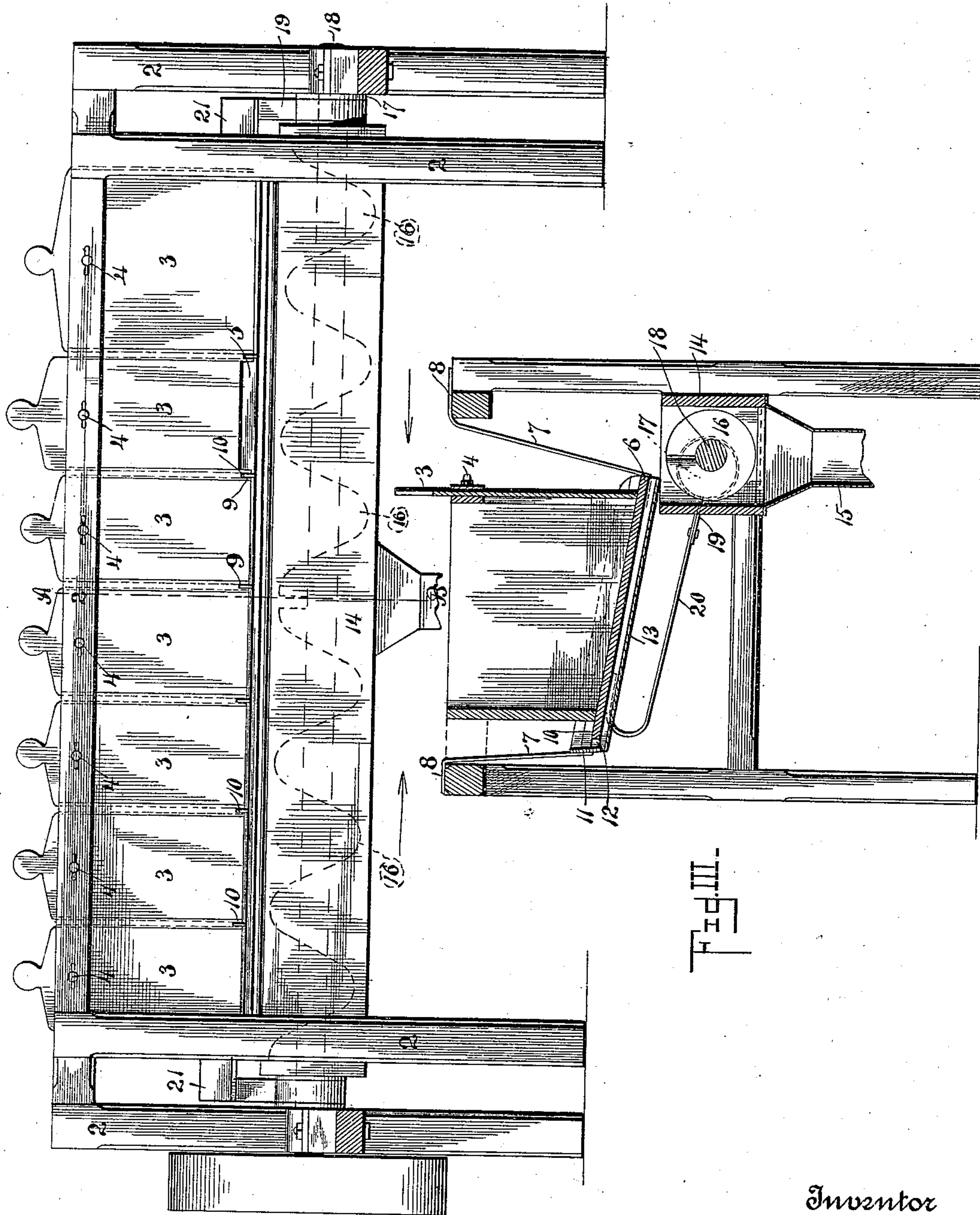
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Fig. II.

Inventor  
*John Fenimore.*

By

*Knight Bros.*  
His Attorneys

Fig. III.



# UNITED STATES PATENT OFFICE.

JOHN FENIMORE, OF WILKES-BARRÉ, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO JACKSON J. ROBBINS, OF SAME PLACE.

## COMBINATION FEEDER AND MIXER.

SPECIFICATION forming part of Letters Patent No. 550,912, dated December 3, 1895.

Application filed July 31, 1894. Serial No. 519,117. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN FENIMORE, a citizen of the United States, residing at Wilkes-Barré, in the county of Luzerne and State of Pennsylvania, have invented a certain new and useful Improved Combination Feeder and Mixer, of which the following is a specification.

My invention relates to a device in which may be deposited a number of different kinds or grades of material—such as feed-stuffs, spices, &c.—to be mixed, and from which said materials will be gradually fed or distributed one upon another and fed along to a suitable outlet, whence the mixture passes for grinding or for treatment in any other way that may be desired. The distribution and feeding are such that each kind or grade of material is delivered slowly and uniformly, and the material from each supply is delivered upon or has delivered upon it equal or proportionate amounts of material from every other supply. The result is that as the mixture escapes from the machine every portion of the flow is alike in constituency and embraces, thoroughly commingled, all the elements which have been contributed from the various supplies.

In carrying out my invention I employ a number of bins or receptacles, each having a suitable outlet, and a feed-trough which extends beneath all of the outlets and passes all of the material fed by the various outlets along in the same path, so that every portion of the material from any one outlet is deposited upon an equal or proportional amount of material from every preceding outlet and has deposited upon it equal or proportional amounts from every succeeding outlet, so that at the point where the train of material is delivered from the machine every section of the train of feed will be found to contain the proper proportions of all of the material which is to enter into the composition.

I prefer to employ a horizontal series of bins rigidly fixed in a suitable frame and having beneath them a single vibrating board or bottom common to all, and to provide each with an adjustable valve-outlet, while in the feed-trough I employ a screw or other equivalent

conveyer to pass the material along, the effect of this latter element being to thoroughly commingle the elements, which would otherwise be deposited in thin layers by the nature of the feeds. I also prefer to use a double conveyer, which will feed from the two ends of the machine toward a central spout, the bins on the opposite sides of this center either being supplied with the same kinds of material or various kinds of material being distributed among all of them, and the two different mixtures which would result being brought together to effect the final complete mixture in the central spout. I also employ certain other details of construction, which will hereinafter be fully described, and particularly pointed out in the claims.

In the accompanying drawings, forming part of this specification, Figure 1 is a plan of a complete machine constructed in accordance with the preferred form of my invention. Fig. 2 is a front elevation of the same, and Fig. 3 is a vertical transverse section on the line A B of Figs. 1 and 2.

1 represents a number of bins or receptacles arranged in a horizontal series and mounted rigidly in a suitable frame 2. These bins or receptacles may be of uniform size; or they may be varied in size to adapt them for the reception of special materials to be operated with and which it may be desired to feed in unequal proportions.

As will be seen upon reference to Figs. 2 and 3, each of these bins or receptacles is provided with a valve-board 3, mounted to slide vertically and to be held at any vertical adjustment by means of set-screws 4. When these boards are raised, they leave at their bottoms outlets such as shown at 5 in Fig. 2 and through which the material may escape gradually.

Extending beneath all of the bins or receptacles 1 and fitting up closely beneath the same is a vibrating bottom 6, suspended by suitable hangers 7, which are adapted to the frame of the machine at 8. This vibrating bottom 6 is slightly inclined, as shown, and is adapted to slide across the lower edges of the walls of the bins in the plane of its inclination in order to keep the material in the bins thor-



oughly agitated and to cause it to escape through the opening left by the elevation of the valves 3 in perfectly-uniform streams.

In order to avoid any possibility of the material of one bin escaping beneath a partition into the next, each partition is grooved, as shown at 9 in Fig. 2 and by dotted lines in Figs. 1 and 3, and the vibrating bottom 6 is provided with upwardly-projecting ribs 10, (see Figs. 1, 2, and 3,) which work in the grooves 9 and while permitting the free vibratory movement of the bottom 6 make an effectual closure between the bottom and the partitions of the bins. Obviously by the nature of the construction some of the material from the bins will work back behind the rear walls during the vibration of the bottom 6. In order to save this material and deliver it with that which passes through the outlets 5, the vibrating bottom 6 is provided with the rear guard-rail 11, and just in front of the latter has a slot 12, while beneath the bottom 6 and slot 12 is a false bottom 13, which collects the material escaping through the opening 12 and carries it forward to the delivery-point of outlets 5.

Extending longitudinally beneath all of the outlets 5 is a horizontal conveyer-trough 14, having a central outlet-spout 15 and mounted within it a double spiral conveyer 16. The parts of this conveyer-blade are reversed, so that the material is fed from opposite directions in the trough to the spout 15. Vibratory movement is imparted to the bottom 6 by eccentrics 17, (shown best by dotted lines in Fig. 3,) which are mounted upon the conveyer-shaft 18 and impart movement to the bottom 6 through the medium of straps 19 and spring-arms 20, which latter are connected to the extensions 21 on the vibrating bottom 6, as shown in Figs. 1 and 2.

From the foregoing description of the construction of the machine it will be understood that materials of various kinds can be delivered into the bins 1, and when the valves 3 are opened sufficiently to permit the escape of the proper amount of the material, according to what it is and how much is desired in the mixture, and when the bottom 6 is set in vibration by the starting of the machine, so that a constant and uniform flow from each bin is maintained, the material, will be delivered from each hopper and fed along toward the center, the material from the end hoppers having deposited upon it that from the next hoppers, then the material from the third hoppers being added, and so on in continuous operation, and the mixture thus formed being delivered through the central spout 15.

I have shown the machine arranged for use in mixing as many different kinds of material as there are bins, two different mixtures being made by the respective halves of the machine and these two mixtures being thoroughly commingled as they escape through

the spout 15; but it is obvious that a machine could readily be arranged so as to have two mixtures of precisely the same kind produced by the respective halves of the machine, or by opening only those valves which will permit the escape of the desired material any two or more of the materials which are kept in stock in the bins may be commingled at will.

Having thus described my invention, the following is what I claim as new therein and desire to secure by Letters Patent:

1. In a combined feeder and mixer the combination of a suitable frame, a horizontal series of bins or receptacles rigidly mounted in said frames and having suitable outlets for the escape of the material therefrom, a common vibrating board extending beneath and forming bottoms for all of the bins or receptacles and projecting in front of the outlets substantially as shown, to gradually deliver material therefrom, a conveyer trough projecting horizontally beneath all of the outlets and feeding the material as it is delivered along the line of said outlets so that the material from each outlet passes successively beneath the point of delivery of each succeeding outlet and whereby all the material from each outlet has delivered upon it or is delivered upon a proportional amount of material from every other outlet, to effect a thorough mixing, a suitable conveyer in the trough and vibration-producing connections between the shaft of said conveyer and the vibrating bottom, substantially as and for the purposes set forth.

2. In a machine substantially of the character specified the combination of the bin or receptacle, having a suitable outlet, a vibrating bottom for said bin or receptacle arranged to move across the sides of the same, and the additional bottom extending beneath the main bottom and arranged to receive the material which escapes back of the bin to convey the same to the point of delivery substantially as explained and for the purpose set forth.

3. In a machine of substantially the character specified the combination of a bin or receptacle having a suitable outlet, a main vibrating bottom beneath the same for keeping the material agitated and causing it to flow uniformly through the outlet and having an opening at the back to permit the escape of material which escapes past the rear wall of the bin, the guard or ridge in rear of the opening at the back of said vibrating bottom and the additional bottom located beneath the main vibrating bottom and extending from said guard or ridge forward to the point of delivery of the material from the bin, substantially as and for the purposes set forth.

JOHN FENIMORE.

Witnesses:

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