

I. B. WHITE.
MIXING DEVICE.

APPLICATION FILED SEPT. 14, 1911.

1,040,826.

Patented Oct. 8, 1912.

3 SHEETS—SHEET 1.

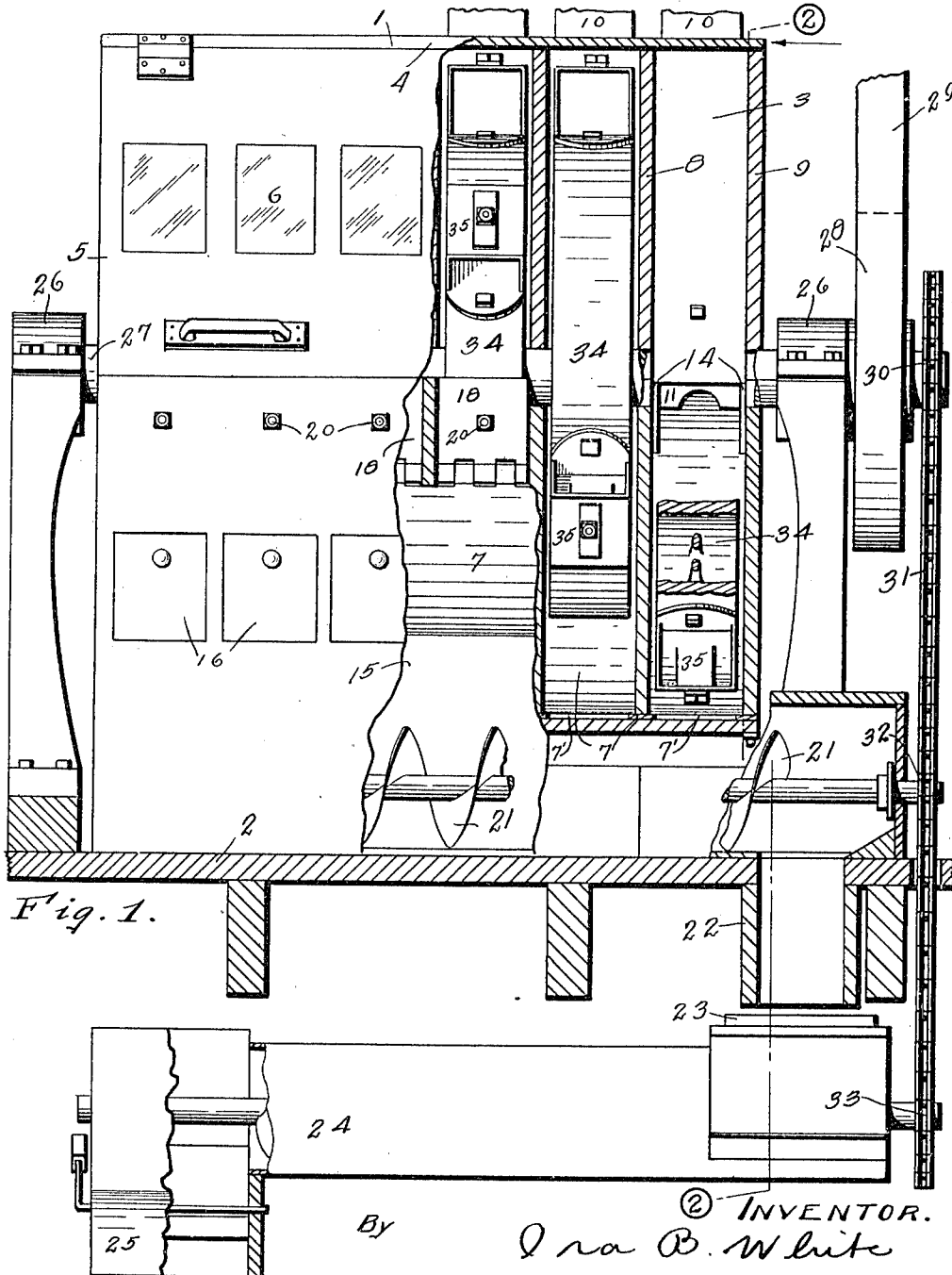


Fig. 1.

WITNESSES.

By

② INVENTOR.

Ira B. White

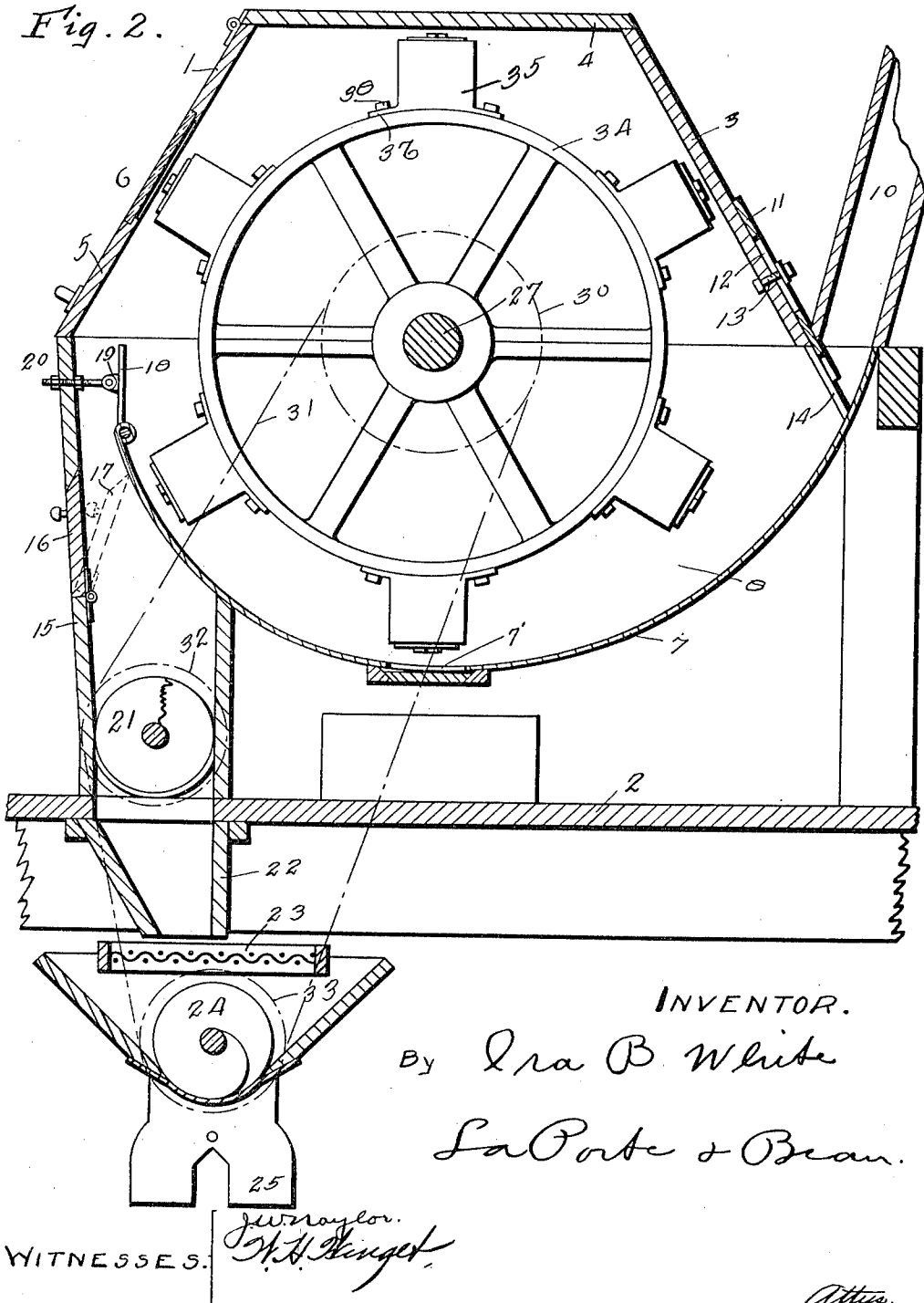
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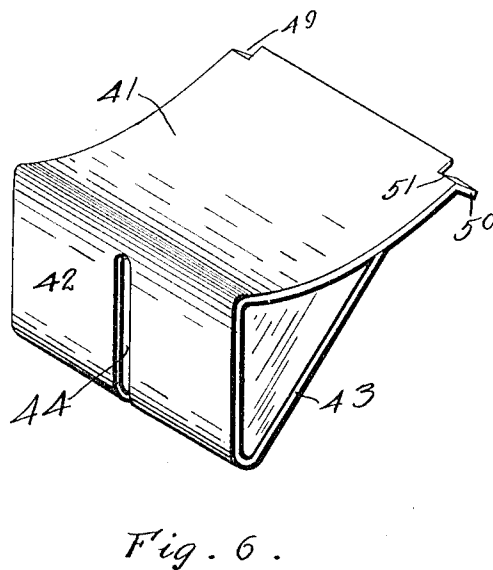
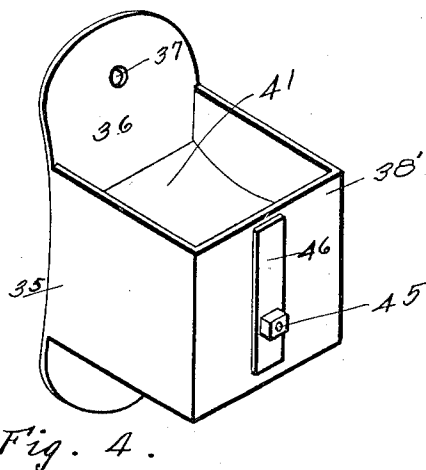
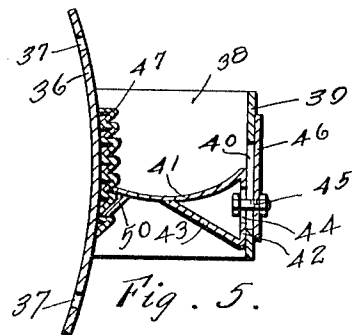
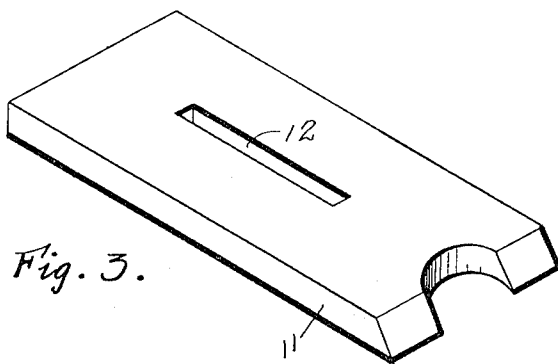
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3 SHEETS-SHEET 3.



WITNESSES.

J. W. Maynor.
Chas. H. Kirgert

INVENTOR

By *Ira B. White*

LaPorte & Bean.

Attys.

UNITED STATES PATENT OFFICE.

IRA B. WHITE, OF PEORIA, ILLINOIS, ASSIGNOR OF ONE-HALF TO ALBERT D. CAMPBELL, OF PEORIA, ILLINOIS.

MIXING DEVICE.

1,040,826.

Specification of Letters Patent.

Patented Oct. 8, 1912.

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To all whom it may concern:

Be it known that I, IRA B. WHITE, a citizen of the United States, residing at Peoria, in the county of Peoria and State of Illinois, have invented certain new and useful Improvements in Mixing Devices, of which the following is a specification.

My invention relates to improvements in mixing devices and, particularly, to a device of that character adapted for mixing finely divided or granular substances in suitable proportions to form a certain mixture or composition.

An object of the invention is the provision, in a device of the character described, of means whereby the relative proportions of each substance or ingredient entering into the mixture may be varied as desired, and further than that to provide a plurality of means for producing or controlling said variation.

A further object of this invention is the provision and utilization in a device of this character of a bucket or conveying device of peculiar construction, that is, having an adjustable bottom so that the capacity thereof may be varied as desired by the operator.

A further object is the provision of a device or machine of the character described wherein a series of wheels are mounted on a shaft, each wheel being positioned in a separate compartment and each compartment having a separate connection with a suitable bin, wherein the substances or ingredients to be mixed together are fed, said wheels having mounted thereon buckets or conveying devices, the number of which on each wheel may be varied as desired, and which buckets are provided with means for varying their capacity, which comprises a movable or adjustable bottom, said device further having a conveyer below said wheels to which the wheels discharge the material and having further mixing means and conveying means.

To the accomplishment of the foregoing and such other objects as may hereinafter appear my invention consists in the construction, combination and arrangement of parts hereinafter described and then sought to be defined with particularity in the claims, reference being had to the accompanying drawings forming a part hereof and which illustrate, for the purposes of this disclosure, the preferred embodiment of

my invention, it being understood, however, that various changes in the details and construction of the device, as illustratively disclosed, may be made within the scope of the claims without digressing from my inventive idea.

In the drawings, in which like characters of reference designate corresponding parts in the several views, Figure 1 is the front elevation of the device, portions including three of the wheels, being shown broken away on different lines to illustrate the interior arrangement, construction and detail. Fig. 2 is a vertical cross section through the device. Fig. 3 is a detail. Fig. 4 is a perspective view of one form of bucket. Fig. 5 is a cross section through another form of the bucket. Fig. 6 is a perspective view of the member which forms the adjustable bottom for the bucket shown in Fig. 5.

My invention comprises a plurality of wheels or rotary supports, all of which are mounted on a shaft so as to turn together and inclosed in a suitable casing, having partitions between each wheel so as to form a separate compartment therefor, having a spout leading from a bin connected to each separate compartment and each compartment further having a separate discharge opening or spout, the entrance to which is controlled by a deflecting plate, said spout discharging on a suitable conveyer which carries the material to a shaker through which it is carried to a further conveyer, if necessary. Each discharge spout is provided with a deflecting valve, to provide a means for testing out any one wheel and each inlet spout is provided with a cut-off or valve which may be adjusted as desired. Each compartment is provided with a valved discharge opening in the bottom thereof. On the wheels are mounted a plurality of buckets or conveying devices, the number of which on each wheel may be varied as desired or as required by working conditions. These buckets each have a bottom which may be moved up and down to vary the internal capacity thereof and thus determine the amount of the particular material or substance, in which one wheel is working, to enter into the mixture.

The casing 1 is mounted on a suitable support 2, such as the floor, said casing having a three-sided top portion 2 comprising a back 3, horizontal top 4 and hinged front 5,

which is provided with openings 6 covered with transparent closures. The bottom of the casing is formed of a curved member 7 extending in proximity to the rear portion 3 of the top at one end and to the front portion 5 of the top at the other end. Partitions 8 are located in said casing at suitable distances apart and from the ends 9 forming entirely separate compartments or chambers. Spouts 10 lead from suitable bins, not shown, to the spaces between the bottom portion 7 and the back 3 of the top portion of the casing, one spout being provided for each compartment. A valve or cut-off, shown in Fig. 3, is provided in proximity to the end of the spout to control the passage of the material into each compartment. A slot 12 is formed in each cut-off and a bolt 13 or other securing means is provided for adjustably holding the cut-off in position, each cut-off sliding on guides 14 which comprise strips secured to the sides of the partitions and ends of the casing. In the lower part of the bottom 7 is provided the opening 7' controlled by a slide valve as shown.

To the forward or front part of the casing is connected the discharge chute or spout 15, the front wall of which is longer than the rear wall, the deficiency in length being overcome by the utilization of a portion of the curved bottom 7 as the rear wall of the discharge chute or spout. The front wall of each chute or spout is provided with a hinged deflecting plate or valve 16 which is provided with the upper beveled edge 17 which in its inner position is designed to rest against the bottom wall of the casing. Connected to the front end of the bottom wall of the casing, are the hinged deflecting members or plates 18, one for each compartment, and having lugs 19 to which are pivotally attached the bolts 20, which provide means for adjusting said deflecting members or plates. At the bottom of the discharge chutes or spouts is positioned the conveyer 21, preferably a screw conveyer, as illustrated, which extends longitudinally the entire length of the machine and discharges through chute 22 on to a shaker 23 through which it passes to another conveyer 24 which feeds the material to a bagger indicated at 25.

Brackets or supports 26 are mounted on the base or support 2 and journaled in said brackets or supports is the shaft 27 which passes longitudinally through the casing and partitions and has on one end thereof pulley 28 driven by bolt 29 and also sprocket wheel 30, having the sprocket chain 31 running thereabout, which sprocket chain 31 drives sprockets 32 and 33 on the ends of the shafts on which the conveyers 21 and 24 are mounted. On this shaft are mounted the rotary supports or wheels 34, one for each compartment in the casing. These

wheels have secured thereto, on their periphery, carrying devices or buckets 35 and thus provide means for lifting, conveying and discharging the material in suitable quantities. The buckets are shown in detail in Figs. 4 to 6. In Fig. 4 is shown the preferred form and this comprises the curved base plate or back 36 which is provided with openings 37 through which the securing means 38 is passed. On this back is formed the rectangular bucket 38 as shown having its front wall 39 provided with a vertical slot 40. The top portion of this bucket is left open while the bottom is formed by the member 41 which has the curved upper surface as shown, the vertically extending front portion 42 and the upwardly inclined bottom and bracing portion 43 which bears against and supports the curved upper portion of the bottom. The front portion 42 is provided with the vertical slot 44, through which and the slot 40 in the front wall of the bucket is passed the adjusting bolt 45. A plate 46 is placed over the slot 40 and held there by the bolt 45. This bolt forms the adjusting means for holding the bottom in any desired position, it being understood that the rear edge of the top portion of the bottom frictionally engages the bottom or base 36 of the bucket proper, the curved construction of the bottom causing it to have a certain amount of elasticity to properly produce this frictional engagement and maintain it. A slight modification of this adjusting means for the bottom of the bucket is disclosed in Figs. 5 and 6. In Fig. 5 are shown a series of small shelves or ratchet teeth 47 which are positioned in each of the corners of the bucket at the base or back plate 36. The rear end of the top 41 of the bottom of the bucket is cut away, as indicated at 49 in Fig. 6, and the lip 50 bent down along the transverse edge 51 of the cut to provide a supporting projection or lug, which is designed to engage and rest on any one of the shelves or teeth 47 and held thereon by means of the bolt or other adjusting means 45 as hereinbefore described.

As I have stated before, in the bins, which are not shown, but which are connected to the supply spouts or chutes 10, are stored the various substances or ingredients which are to enter into the composition and are fed into the compartments through said spouts, this feed being controlled by means of the cut-offs 11, which may be adjusted as desired. In these compartments are mounted the wheels or rotary supports which have secured, on their periphery, a plurality of buckets or conveying devices. The number of the buckets on the various wheels may be arranged as desired to introduce a suitable proportion of any one substance into the mixture. While the number of these buckets may be varied to control the amount of any

one of the substances entering into the mixture, the capacity of each bucket may be varied so as to provide a further means for regulating the amount of any one material that enters into the composition or mixture. The capacity of these buckets may be varied as set forth herein by raising or lowering the movable bottom thereof. It is understood that all of the rotary supports or wheels are mounted on the same shaft and, consequently, rotate at the same speed, so that the only means of varying the relative proportions of the ingredients or material which enter into the composition or mixture is by changing the number of buckets on each wheel or by varying the capacity of each bucket on the wheels until the correct proportions are attained. The opening 7' and its slide valve which are provided in the bottom 7 of the casing provide a means for emptying the casing of any surplus material. The deflecting plate 18 provides another means for controlling the relative amount of discharge of material from any one compartment while the deflecting plate or valve 16 provides a means whereby the material discharged from one compartment may be passed out of the machine separately for the purpose of making a test or otherwise. The conveyer 21 provides a mixing means as does the shaker 23 and conveyer 24.

It is thus seen that I have provided a machine which is efficient in operation, and wherein the suitable adjustments may be made to regulate the discharge and proportions of the different ingredients or substances entering into the composition or mixture with facility.

While my machine is particularly designed for mixing poultry feed it is obvious that the construction herein disclosed may be utilized for mixing any substances of a divided character into a suitable mixture or composition, and it is to be understood that the purpose of my invention is such.

What I claim is:—

1. In a mixing device, a casing having a plurality of compartments formed therein, each compartment adapted to have operative connection with a bin, a plurality of rotatable supporting members mounted in the compartments of said casing, means for rotating said supporting members, discharge chutes or spouts connected to said compartments, conveying devices on said rotary supports adapted to discharge into said chutes or spouts, means for varying the capacities of said conveying devices, and means for varying the sizes of the openings into the discharge chutes or spouts.

2. In a mixing device, a casing having a plurality of compartments formed therein, each compartment adapted to have operative connection with a bin, a plurality of rotatable supporting members mounted in

the compartments of said casing, means for rotating said supporting members, discharge chutes or spouts connected to said compartments, conveying devices on said rotary supports adapted to discharge into said chutes or spouts, means for varying the capacities of said conveying devices, and deflecting means mounted in each of said discharge chutes or spouts so that material may be discharged from any one of the chutes to the outside of the machine for the purposes set forth.

3. In a mixing device, a casing, a plurality of partitions disposed therein in spaced relation to form compartments, a shaft extending through said casing, a plurality of rotatable supporting members mounted on said shaft and positioned in said compartments, supply inlets for each of said compartments, discharge outlets for each of said compartments, conveying buckets on each of said rotatable supporting members, means for varying the capacities of said conveying buckets, means for varying the size of the supply inlets and means for varying the size of the discharge outlets.

4. In a mixing device, a casing having a plurality of compartments formed therein, wheels mounted in said compartments, means for rotating said wheels, each of said compartments having discharge openings, means for varying and controlling said discharge openings, said wheels each having a plurality of buckets mounted thereon, and each of said buckets being adjustable to control the capacity thereof.

5. In a mixing device, a casing, a plurality of partitions disposed therein in spaced relation to form compartments, inlets to each of said compartments adapted to be connected to storage bins, separate outlets from each compartment, conveying means disposed below said outlets, a shaft extending through said casing, a plurality of wheels mounted on said shaft in said compartments, and conveying buckets on said wheels, each of said buckets being adjustable to vary the capacity thereof.

6. In a mixing device, a casing, a plurality of partitions disposed therein in spaced relation to form compartments, each compartment having an inlet adapted to be connected to a storage bin and having a separate discharge outlet or chute, a shaft extending through said casing, a plurality of wheels mounted on said shaft in said compartments, and adjustable conveying devices on said wheels, means for controlling and varying the discharge openings to said discharge outlets or chutes, a screw conveyor disposed below said discharge outlets or chutes to act as a conveying and mixing means.

7. In a mixing device, a casing having a

plurality of compartments formed therein, each compartment adapted to have operative connection with a bin, a plurality of rotatable supporting members mounted in the compartments of said casing, means for rotating said supporting members, discharge chutes or spouts connected to said compartments, conveying devices on said rotary supports adapted to discharge into said chutes or spouts, and means for varying the capacities of said conveying devices without changing the external shape of said conveying devices.

8. In a mixing device, a casing, a plurality of partitions disposed therein in spaced relation to form compartments, each compartment having an inlet adapted to be connected to a storage bin and having a separate discharge outlet or chute, a shaft extending through said casing, a plurality of wheels mounted on said shaft in said compartments, and adjustable conveying devices on said wheels, and a screw conveyor horizontally disposed below said discharge outlets or chutes to act as a conveying and mixing means.

9. In a mixing device, a casing including a top portion and a rounded bottom portion, partitions disposed in said casing in spaced relation to form compartments, each compartment having an inlet adapted to be connected to a storage bin from whence the material is discharged on to the curved bottom of said casing, each compartment having a separate discharge outlet or chute in the front portion thereof, a shaft extending through said casing and said partitions, a wheel mounted entirely within each compartment and secured to said shaft and adjustable conveying devices on said wheels adapted to pick up the material from the curved bottom of said casing and discharge it through said discharge outlets or chutes, and means for delivering the material from said discharge outlets or chutes.

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

IRA B. WHITE.

Witnesses:

GEORGE T. BEAN,
W. H. WINGET.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."