No. 806,732. PATENTED DEC. 5, 1905.

H. W. BLAISDELL.

SYSTEM FOR CONVEYING, DISTRIBUTING, AND EXCAVATING MATERIAL.

APPLICATION FILED NOV. 4, 1902.

4 SHEETS—SHEET 1.

Fig. 1.

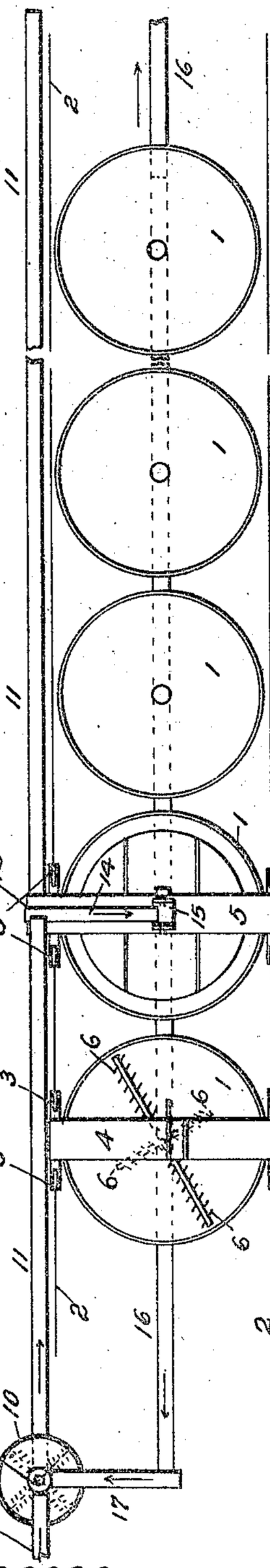


Fig. 2.

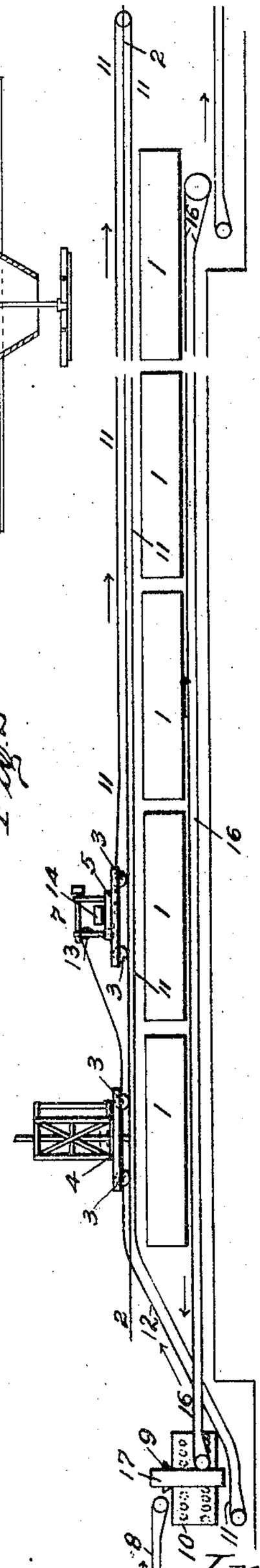


Fig. 9.

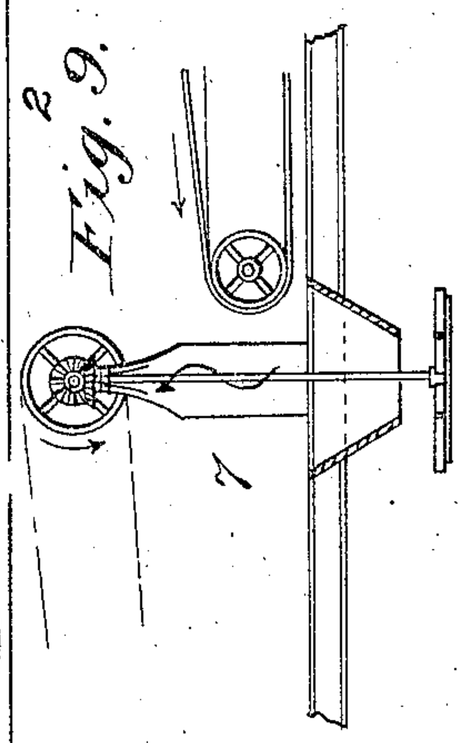
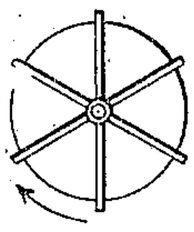


Fig. 10.



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4 SHEETS—SHEET 2.

Fig. 3

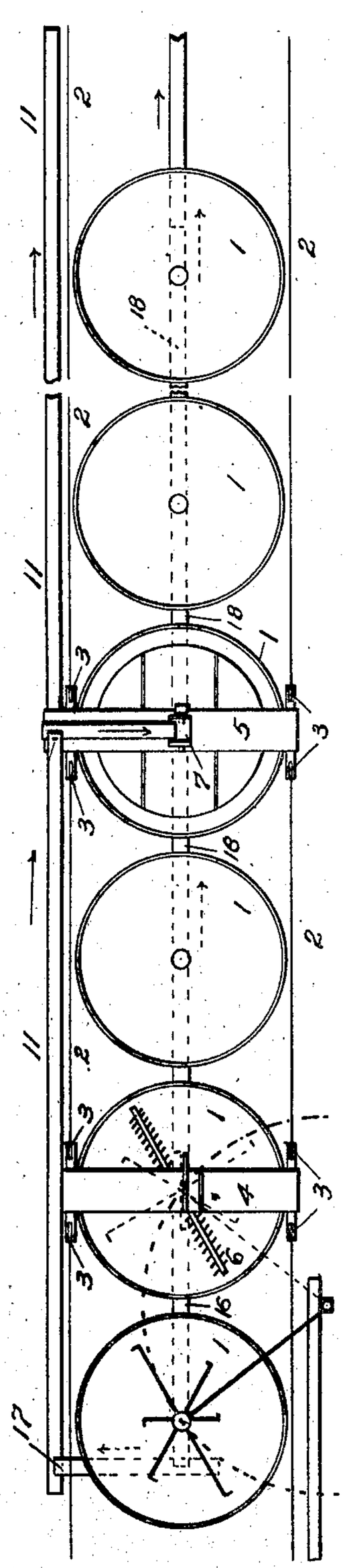
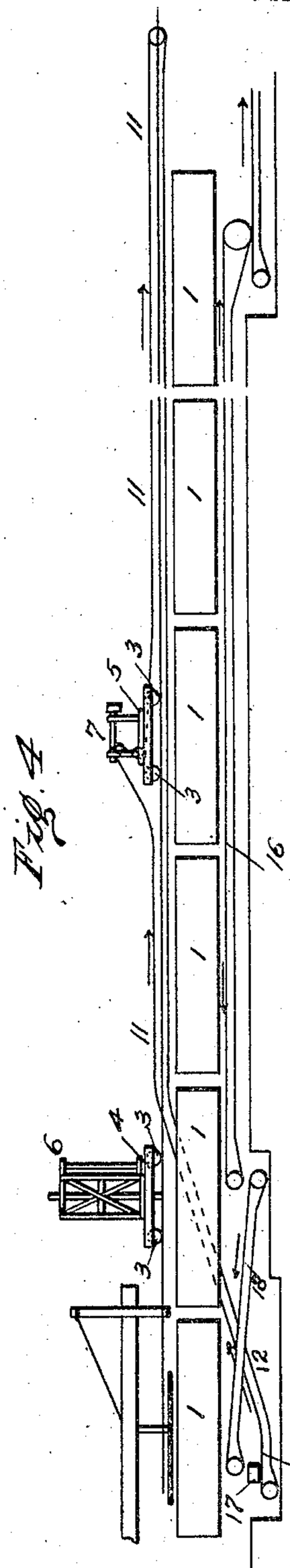


Fig. 4



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4 SHEETS—SHEET 3.

Fig. 5

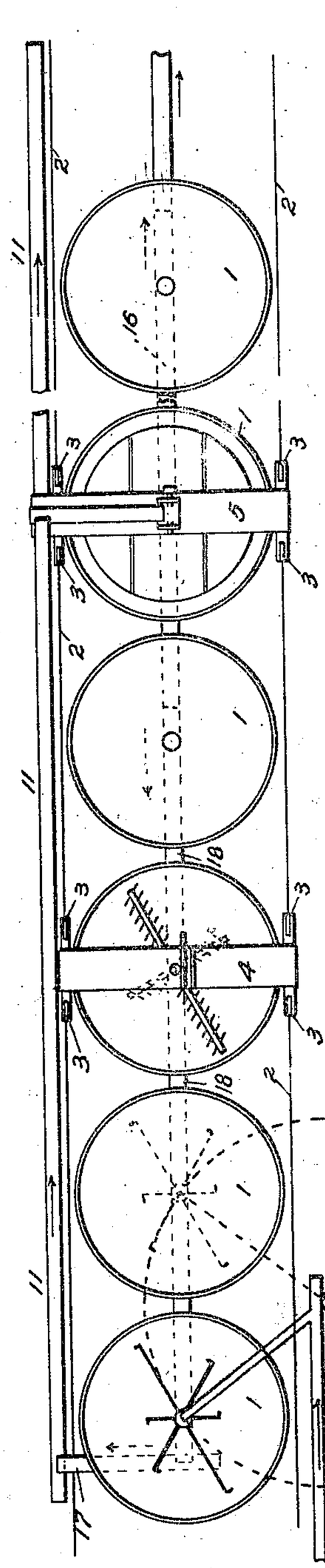
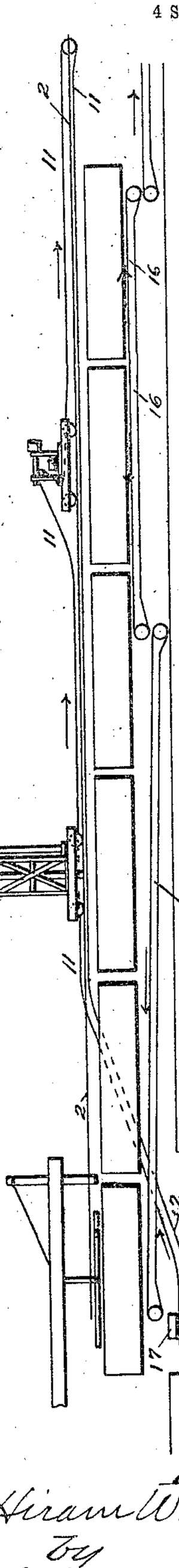


Fig. 6.



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4 SHEETS—SHEET 4.

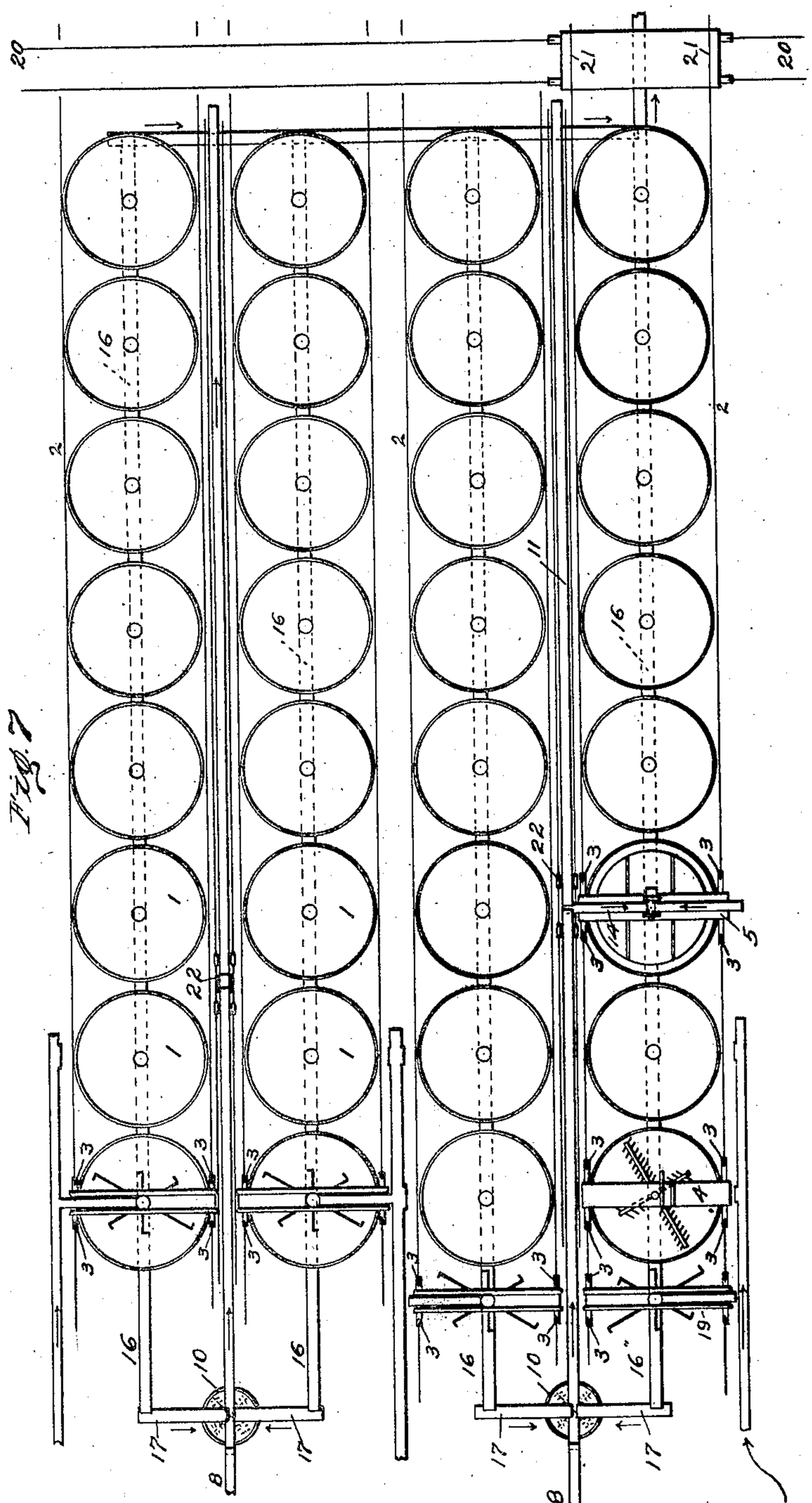

Fig. 7.

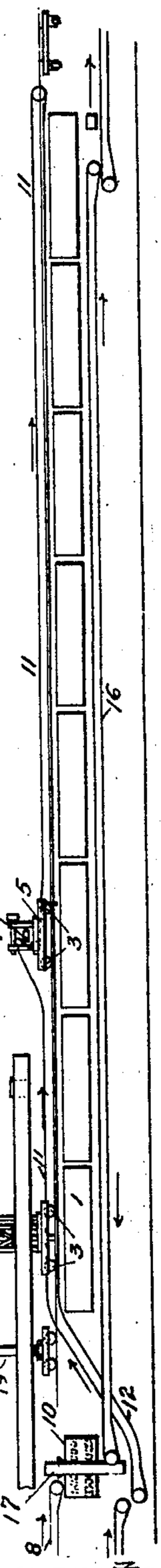

Fig. 8.

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UNITED STATES PATENT OFFICE.

HIRAM W. BLAISDELL, OF LOS ANGELES, CALIFORNIA.

SYSTEM FOR CONVEYING, DISTRIBUTING, AND EXCAVATING MATERIAL.

No. 806,732. Specification of Letters Patent. Patented Dec. 5, 1905.

Application filed November 4, 1902. Serial No. 130,088.

To all whom it may concern:

Be it known that I, HIRAM W. BLAISDELL, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented certain new and useful Improvements in Systems for Conveying, Distributing, and Excavating Material; 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.

This invention relates to conveyer systems, and particularly to systems for conveying, mixing, and distributing material; and some of the objects of the invention are to provide such systems which will be simple in construction and positive and effective in operation.

Another object of the invention is to arrange the conveyers in such manner as to transport the material from one receptacle to another in each row of receptacles and from one row to other parallel rows without interrupting or retarding the passage of the material from the source of supply.

A further object of the invention is to transport wet or dry material or dry or moisten the same, as may be desired, while being transported, then discharge the dried or moistened material into a receptacle for treatment, then discharge the treated material to the place of deposit, or reconvey the treated material back to another receptacle for further treatment, and to accomplish the foregoing objects by one continuous operation.

It is also an object of this invention to provide means for rapidly filling and emptying bins, vats, or other receptacles, and to distribute the material supplied to the bin or vat evenly throughout the entire area thereof, and which can be operated to gradually feed the contents of the bin or vat to a central discharge-opening.

A further object of the invention is to provide means for filling and emptying, as well as distributing, the material operated upon in a plurality of rows of vats or receptacles, and also to provide such means constructed to be transported from one tier of vats or receptacles to another.

With these and other objects in view the invention consists, essentially, in the construction, combination, and arrangement of parts substantially as more fully described in the following specification, and as illustrated in the accompanying drawings, forming part of this application, in which—

Figure 1 is a diagrammatic top plan view of a row of receptacles provided with a system of conveyers and means for either drying or moistening the material in transit and for discharging the material from a filled receptacle. Fig. 2 is a diagrammatic side elevational view of the same. Fig. 3 is a diagrammatic top plan view of a row of receptacles provided with a system of conveyers and means for distributing the slimeless tailings into the receptacles and discharging the same therefrom. Fig. 4 is a diagrammatic side elevational view of the construction shown in Fig. 3. Figs. 5 and 6 are views substantially similar to Figs. 3 and 4 with a slight difference in the arrangement of the conveyers. Fig. 7 is a diagrammatic top plan view of a plurality of parallel rows of receptacles provided with systems of conveyers and means for drying or moistening the material in transit and for discharging the dried or moistened material into and from the receptacles. Fig. 8 is a diagrammatic side elevational view of the same, and Figs. 9 and 10 are detail views of one form of distributer that may be employed.

Similar characters of reference designate corresponding parts throughout the several views.

Referring to the drawings, and particularly to the construction illustrated in Figs. 1 and 2 thereof, the reference character 1 designates receptacles or vats, which are here illustrated as arranged in a row; but the receptacles may be arranged in a plurality of parallel rows substantially as illustrated in Fig. 7, and there may be tiers of receptacles in each row, or any other arrangement thereof may be employed that may be found desirable in practice. Disposed on each side of the row of receptacles 1 are parallel tracks or ways 2, whereon travel wheels 3, supporting traveling structures or bridges 4 and 5, respectively, supporting an excavator 6 and a centrifugal distributer 7, both whereof are constructed to be moved along said tracks over the receptacles 1, as will be readily understood. The material operated upon may be from the tailings-pond or from the dry-crushing mill, and if from the former it will require to be dried before being delivered to the treating-receptacles 1, and if from the latter it will be necessary to moisten the dry and finely-divided material to prevent loss of the small and valu-

able particles in dust. Therefore the material may be brought from the tailings-pond, if wet or moist material is being handled, upon an endless belt or other conveyer 8, arranged to discharge the wet material into a receiving-hopper 9 of a mixing-receptacle 10, where it is agitated or mixed while subjected to the action of a drying agent and is discharged from the mixing-receptacle upon a main endless conveyer 11, having an inclined portion 12, and the main conveyer 11 passes up over a tripper 13 upon one end of the traveling structure or bridge 5, whereon is mounted an auxiliary or cross conveyer 14, constructed to receive the dried material from the main conveyer 11 as the same passes up over the gripper 13 and conveys the material so received to a centrifugal distributer 15, also carried by said bridge, which distributes the material discharged thereinto by said cross-conveyer into the receptacle or vat 1, over which the traveling structure or bridge 5 is at the time located. After the first receptacle or vat shall have been thus filled the bridge 5 may be progressed by machinery or by hand along the tracks 2 until it is brought over or above the next succeeding receptacle or vat; but during the removal of the bridge 5 from one vat to another the supply of material will be temporarily discontinued. When the material comes from a dry-crushing mill, it is transported to the mixing-receptacle 10 by the conveyer 8, as before explained; but instead of being mixed therein while subjected to the action of a drying agent it is sprayed with liquid and thoroughly mixed therewith, after which the mixed material is discharged upon the main conveyer 11, which discharges upon the cross-conveyer 14, that discharges into the centrifugal distributer 15, substantially as before stated. The centrifugal distributer discharges the material uniformly within the vat, where the contents is subjected to treatment while the succeeding vat is filled in the manner before described. When it is desired to remove the treated material from the vat which has been thus filled, it is only necessary to move the traveling structure or bridge 4 over or above the tank to be emptied and start the excavator 6, carried thereby, whereupon the material is discharged therefrom upon an endless lower or discharging conveyer 16, arranged to run in either direction, so as to convey the material to the waste-dump or to convey it to an elevating-conveyer 17, which discharges the treated material a second time into the mixing-receptacle 10 to be again dried and returned in the manner before described to the vats for retreatment.

Adverting now to the construction illustrated in Figs. 3 and 4 of the drawings, there is illustrated a row of vats 1, tracks 2, traveling bridges 4 and 5, carrying, respectively, an excavator 6 and centrifugal distributer 7, together with a main conveyer 11; but in this construction the main conveyer 11 does not reach a plane above the vats until beyond the second vat, Fig. 4. Therefore the first and second vats cannot be filled by the centrifugal distributer 7, as in the construction first described. The first and second vats are filled by a Butter's distributer, receiving the material from the launder or in any other desired manner, and the vats thus filled are emptied by the excavator 6, the contents thereof being discharged upon an inclined conveyer 16, discharging upon a cross or elevating conveyer 17, which discharges upon the main conveyer 11, before mentioned, to return the treated material to the vats for further treatment. All of the vats except the first and second vats just described may be filled by means of the centrifugal or other distributer 7 and parts operating therewith, and such other vats may be discharged of their contents by means of the excavator 6, which causes such contents to fall through the bottom of the vat upon an endless conveyer 18, which either transports to the waste-dump the material discharged thereon or discharges such material upon an inclined conveyer 16, discharging upon a cross-conveyer 17, emptying upon the main conveyer 11, which returns the material to the vats for retreatment.

Figs. 5 and 6 illustrate a substantially similar construction, with the exception that the discharging-conveyer 16 is made shorter in this construction and the inclined conveyer 18 is lengthened, Fig. 6, and the treated material can be discharged from the vats upon said discharge-conveyer, which can be arranged to transport the same to the waste-dump or to discharge it upon the inclined conveyer 18, which discharges upon the elevating-conveyer 17, that returns the treated material to the main conveyer 11, as before explained.

In Figs. 7 and 8 of the drawings there is illustrated a plurality of parallel rows of vats 1, with a track 2, disposed on each side of each row and parallel therewith, on which travels the bridge 4, supporting the excavator 6 and the bridge 5, carrying the centrifugal distributer 7 and the auxiliary or cross conveyer 14, discharging into said distributer shown in Fig. 7 as constructed in two parts or section, in order to receive the material from the main conveyer 11 at either end of the bridge 5, according to the position of the bridge, as will be hereinafter more fully explained. Upon the tracks 2 travels another structure or bridge 19, supporting a Butter's distributer or equivalent device receiving material from the launder and discharging the same into the first two vats, substantially as shown in Fig. 7 of the drawings. The material from the tailings-pond is discharged from an endless conveyer 8 into the mixing-receptacle 10, which discharges the mixed material upon the main conveyer 11 and the latter

in turn discharges upon the auxiliary conveyer 14, that empties the material into the centrifugal distributer 15, by which the material is distributed uniformly within the vat in the manner beforé stated. After the first two vats shall have been filled by the traveling Butter's distributer or the other vats shall have been filled by the traveling centrifugal distributer then the said distributers will be moved out of the way and the traveling excavator 6 brought into position over the tank to be emptied and the contents discharged from said tank by said excavator upon the continuous discharge-conveyer 16, arranged to transport the material to the waste-dump or discharge it upon the elevating-conveyer 17 to be returned to the mixer, from which it is redelivered to the vats by the main conveyer 11, substantially as before stated.

When a plurality of rows of vats are employed, as shown in Fig. 7, cross-tracks 20 are arranged at the discharging end of the rows of vats, and mounted to travel on said tracks is a transfer table or platform carrying short transverse rail-sections 21 to receive and support the wheels 3 of the distributer or excavator bridges when it is desired to transfer either of said bridges from one row of vats to the other, as will be readily understood. By means of this construction only one excavator and one centrifugal distributer are required for any number of rows of vats, as either can be run upon the transfer-table and conveyed to any desired row of vats. When the centrifugal distributer-bridge is transferred, a traveling tripper 22 is employed for the main conveyer 11 and is independent of the bridge or traveling structure carrying the centrifugal distributer in order to permit of the transfer of the latter from one row of vats to the other.

I claim—

1. A system provided with a receiving-conveyer, a plurality of vats, a main conveyer traveling adjacent thereto, a cross or auxiliary conveyer taking the material from said main conveyer and delivering it to a vat, a second cross-conveyer and a discharging-conveyer receiving the material from the vat and delivering it to said second cross-conveyer for retreatment.

2. A system provided with a receiving-conveyer, a plurality of vats, a main conveyer traveling adjacent thereto, a cross or auxiliary conveyer taking the material from said main conveyer and delivering it to a vat, a second cross-conveyer discharging upon said main conveyer and a discharging-conveyer constructed to travel in either direction so as to deliver the material at the place of deposit or return the same to said second cross-conveyer.

3. A system provided with a plurality of vats, a main conveyer traveling adjacent thereto, a cross auxiliary conveyer taking the material from said main conveyer and delivering the same to said vats, a second cross-conveyer discharging upon said main conveyer and a discharging-conveyer to return to said second cross-conveyer the material received from said vats.

4. A system provided with a row of vats, a main conveyer traveling parallel with and adjacent to the vats, a cross or auxiliary conveyer taking the material from the main conveyer and delivering the same to the vats, a second cross-conveyer to discharge upon said main conveyer and a discharging-conveyer constructed to discharge upon said second cross-conveyer or at the place of deposit the material received from said vats.

5. A system provided with a main conveyer, a plurality of vats, a mixing apparatus discharging the mixed material upon said main conveyer, an auxiliary conveyer discharging into said vats the material from said main conveyer, a cross-conveyer discharging into said apparatus and a discharging-conveyer constructed to deliver to said cross-conveyer the material received from said vats.

6. A system provided with a main conveyer, a plurality of vats, a traveling structure carrying an auxiliary conveyer receiving the material discharged by the passage over said structure of said main conveyer and delivering the same to said vats and a discharging-conveyer to transport the material from said vats.

7. A system provided with a plurality of vats a main conveyer, a traveling structure partly over the end of which said conveyer travels, an auxiliary conveyer on said structure receiving the material, from said main conveyer and discharging the same into one of said vats and a discharging-conveyer transporting the material received from said vats.

8. A system provided with a main conveyer, a traveling structure partly over the end of which said conveyer travels, an auxiliary conveyer on said structure receiving the material from said main conveyer and discharging the same into a plurality of vats and a discharging-conveyer constructed to transport the material from said vats to the place of deposit or to return the same to said main conveyer.

9. A system provided with a main conveyer, and a plurality of vats, a traveling structure partly over the end of which said main conveyer passes, an auxiliary conveyer on said structure transporting to said vats the material from said main conveyer, a cross-conveyer discharging upon said main conveyer and a discharging-conveyer to transport the material received from said vats to the place of deposit or return the same to said cross-conveyer.

10. A system provided with a plurality of vats, a traveling structure or bridge carrying a distributer, a main conveyer passing over and back under one end of said structure and an auxiliary conveyer upon said structure de-

livering for deposit the material received from said main conveyer.

11. A system provided with a plurality of vats, a traveling structure or bridge carrying a distributer, a main conveyer passing over one end of said structure and a discharging-conveyer to transport the material from said vats.

12. A system provided with a main conveyer, a plurality of vats, a traveling structure over one end whereof said main conveyer passes and carrying a distributer, an auxiliary conveyer on said structure delivering to said distributer the material received from said main conveyer, a traveling excavator to discharge the contents of the vats and a discharging-conveyer to transport said discharged material.

13. A system provided with a main conveyer, a plurality of parallel rows of vats, a traveling auxiliary conveyer to direct into vats the material received from said main conveyer, a discharging-conveyer taking the material from said vats and a transfer-table to transport said auxiliary conveyer to another row of vats.

14. A system provided with a row of vats, a plurality of main conveyers each having a traveling tripper, a traveling structure or bridge carrying an auxiliary conveyer receiving the material from said main conveyer and directing the same into a vat and a transfer-table to transport said structure to another row of vats.

15. A system provided with a plurality of main conveyers, a plurality of rows of vats, tracks or ways on each side of each row of vats, a traveling structure or bridge upon said tracks, means on said structure to deliver to the vats the material received from said main conveyer, cross-tracks and a conveyer platform or table thereon to receive said structure and transport the same to another set of tracks.

16. A system provided with an endless main conveyer, a plurality of vats, a centrifugal distributer discharging into the vats a traveling means for emptying the vats and means for discharging into the distributer the material received from the main conveyer.

17. A system provided with an endless main conveyer, a plurality of vats, a centrifugal distributer discharging into the vats a traveling means for emptying the vats and an auxiliary conveyer discharging into said distributer the material received from said main conveyer.

18. A system provided with a main conveyer, a plurality of vats, a distributer discharging into the vats, an auxiliary conveyer for discharging into the distributer the material received from the main conveyer traveling means for emptying the vats and a discharging-conveyer receiving the material from the vats.

19. A system provided with a main conveyer, vats, a movable excavator, a movable distributer for filling the vats from said main conveyer, and a discharging-conveyer receiving the material from the vats.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, at Los Angeles, in the county of Los Angeles and State of California, this 23d day of October, 1902.

HIRAM W. BLAISDELL.

Witnesses:
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L. B. ALDERETE.