

No. 892,496.

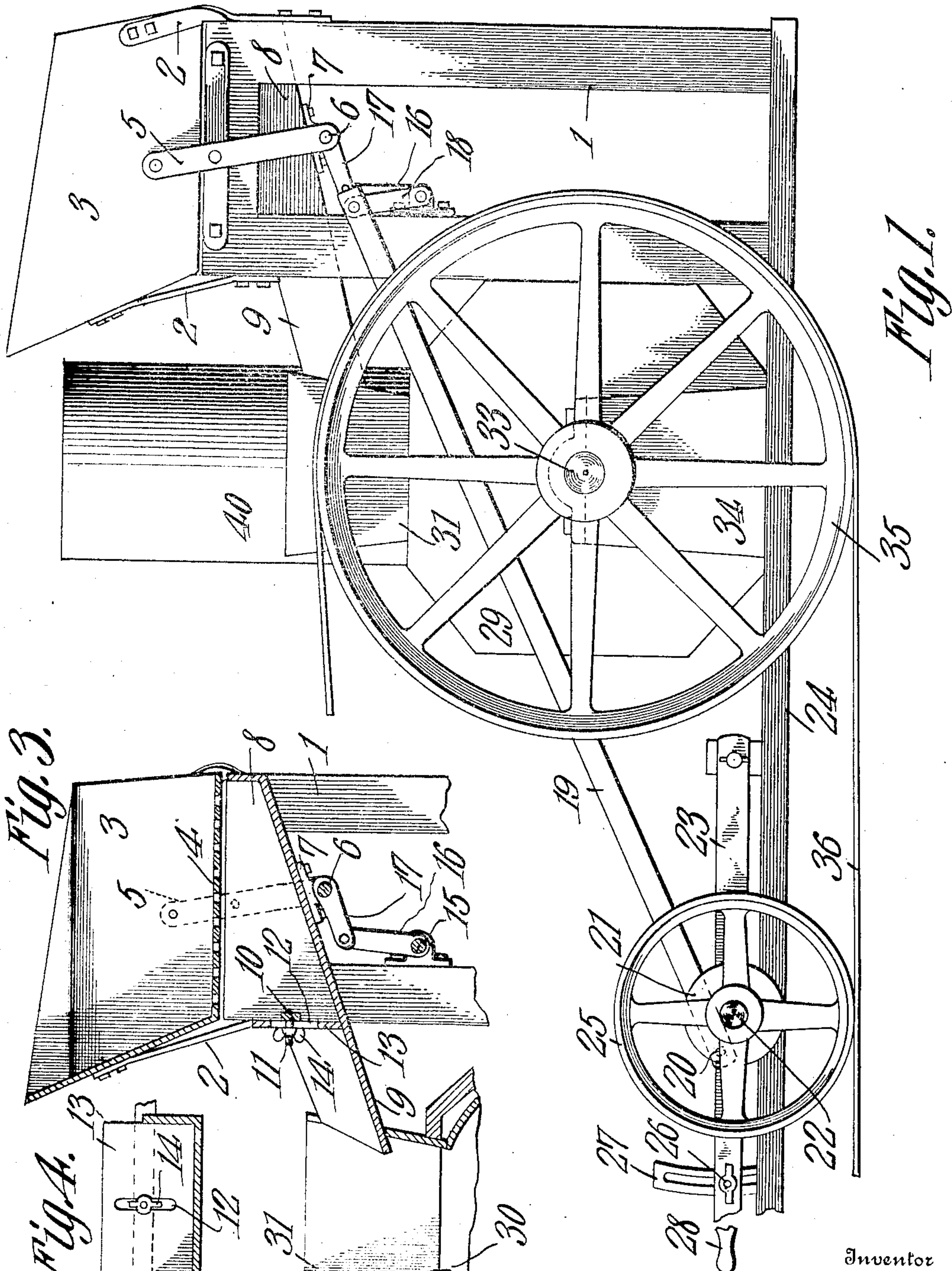
PATENTED JULY 7, 1908.

A. G. AXELSON.

CONCRETE MIXING APPARATUS.

APPLICATION FILED SEPT. 17, 1907.

2 SHEETS—SHEET 1.



Witnesses

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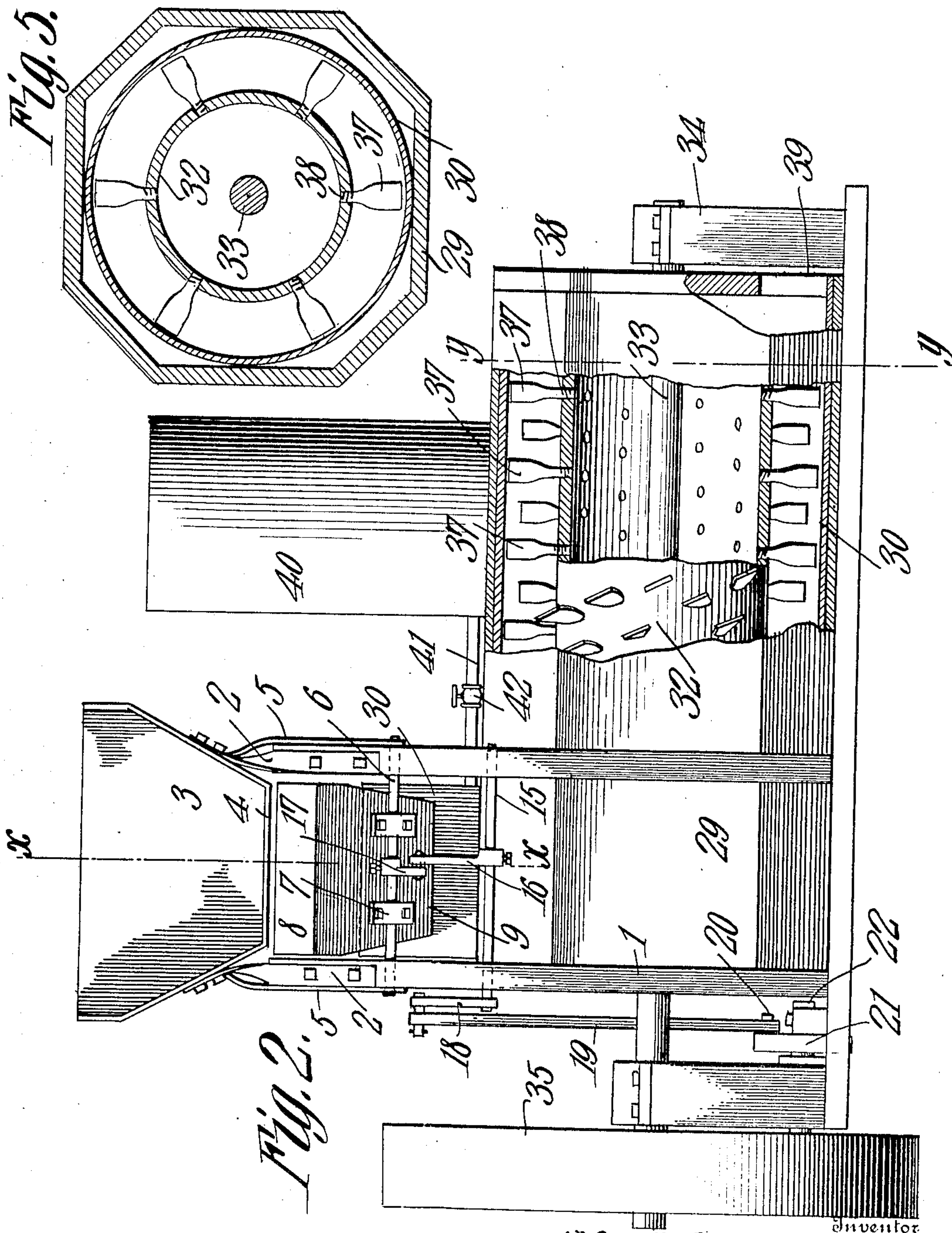
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UNITED STATES PATENT OFFICE.

ALFRED G. AXELSON, OF ORLEANS, NEBRASKA.

CONCRETE-MIXING APPARATUS.

No. 892,496.

Specification of Letters Patent.

Patented July 7, 1908.

Application filed September 17, 1907. Serial No. 393,267.

To all whom it may concern:

Be it known that I, ALFRED G. AXELSON, a citizen of the United States, residing at Orleans, in the county of Harlan and State of Nebraska, have invented a new and useful Concrete-Mixing Apparatus, of which the following is a specification.

This invention relates to means for mixing concrete and its object is to provide mechanism of this character designed to first screen the material and to subsequently discharge it into a mixing compartment, the discharge of material from the screen to the mixer being under the control of the operator.

A still further object is to provide mixing apparatus of novel construction, said apparatus as well as the screening and feeding mechanism being driven from a single shaft there being mechanism, however, whereby the operation of the feeding apparatus can be stopped without necessitating the stoppage of the mixing apparatus.

With these and other objects in view the invention consists of certain novel features of construction and combinations of parts which will be hereinafter more fully described and pointed out in the claims.

In the accompanying drawings is shown the preferred form of the invention.

In said drawings: Figure 1 is a side elevation of a machine embodying the present improvements. Fig. 2 is a rear elevation thereof, a portion of the casing of the mixer being broken away. Fig. 3 is a section on line $x-x$, Fig. 2. Fig. 4 is a front elevation of the controlling gate of the feed apparatus, the adjoining parts being shown in section. Fig. 5 is a section on line $y-y$, Fig. 2.

Referring to the figures by characters of reference, 1 designates a supporting frame from the upper end of which extends supporting springs 2 which are fastened to a hopper 3 open at one end, said hopper being held above the frame 1 by the springs and having a screen bottom 4. Pivotally mounted on studs at each side of the frame 1 is a lever 5 and the upper ends of these levers are pivotally connected to the sides of the hopper 3 while the lower ends thereof constitute bearings for a cross rod 6. This rod has supporting blocks 7 mounted thereon and connected to the inclined bottom of a feed hopper 8 which is located directly below the hopper 3 and is designed to receive material discharged through the screen 4. A spout 9 extends

from the lower end of the feed hopper 8 and disposed at the upper end of this spout is a cross strip 10 from which extends a bolt 11 projecting through a slot 12 formed within a gate 13. This gate is designed to close the spout 9 and can be raised to regulate the passage of material from the hopper 8 to said spout. Any suitable means such as a thumb nut 14 may be provided for locking the gate in any position to which it may be adjusted. A rock shaft 15 is mounted on the frame 1 and has an arm 16 keyed or otherwise secured thereto and connected to the rod 6 by means of a link 17. Another arm 18 is rigidly connected to one end portion of the rock shaft 15 and pivoted to this arm is a pitman 19 preferably formed of wood and which engages a wrist pin 20 extending from a disk 21 secured to a shaft 22. This shaft is suitably journaled within a lever 23 which is pivotally connected to the base 24 of the machine and a pulley 25 is secured to said shaft and is designed to rotate it. Lever 23 has a clamping bolt 26 extending therefrom and disposed to travel within a slotted guide strip 27 extending upward from the base. A handle 28 is located at one end of the lever and by means thereof the pulley 25 can be raised or lowered relative to the base. The clamping bolt 26 is designed to lock the lever in any position to which it may be adjusted.

Mounted upon the base 24 is a casing 29 of any desired external contour and this casing is preferably provided with a cylindrical metallic lining 30. A hopper 31 opens into the top of the casing and supports one end of the spout 9 as shown in Fig. 3. This casing 29 and its lining 30 constitutes the end closure for the hollow mixing cylinder 32 which is secured to a shaft 33 extending longitudinally within the casing and mounted upon suitable bearing blocks 34. A large pulley 35 is secured to one of the end portions of the shaft 33 and is designed to be driven by a belt 36. Pulley 25 heretofore referred to is located above the lower ply of the belt and is adapted to rest thereon and to receive motion therefrom. Cylinder 32 has mixing blades 37 radiating therefrom and arranged spirally therearound each blade being preferably formed with a screw threaded stem 38 designed to screw into the cylinder. The blades are so inclined that when the cylinder is rotated in one direction they will not only thoroughly agitate any material supplied to

the casing but will also direct it toward one end of said casing where an outlet 39 is provided.

A water tank 40 is located upon the casing 29 or at any desired point and is connected with the hopper 31 by a pipe 41 having a suitable valve 42 whereby the passage of water from the tank to the hopper may be controlled.

When it is desired to use the apparatus the shaft 33 is set in motion through pulley 35 and belt 36 and the cylinder 32 is rotated within its casing. Pulley 25 is then lowered into contact with belt 36 and will cause disk 21 to rotate and pitman 19 to reciprocate. As a result arms 16 and 18 will produce an oscillation of the levers 5 and as the hoppers 3 and 8 are secured to the links above and below their pivots respectively it will be apparent that the two hoppers will be shifted backward and forward alternately. The gravel and other material to be mixed is then placed within the hopper 3 in any suitable manner and as this hopper is shifted rapidly backward and forward in the manner described it will of course be apparent that the desirable portions of the material will be sifted through the screen while the large objectionable portions will be discharged from the open end thereof. The material dropping into hopper 8 will be shifted therealong and along the spout 9 by reason of the movement which is imparted to said hopper and its spout and will therefore be discharged into the hopper 31 which directs it into the casing 29. A desired quantity of water can also be discharged into hopper 31 by operating the valve 42. When the material drops into casing 29 the blades 37 act upon it to thoroughly agitate and mix it and at the same time direct it toward the outlet 39. By adjusting the gate 13 the passage of material to the hopper 31 can be controlled. Should the material be fed too rapidly to the casing 29 the feed can be stopped without stopping the mixing apparatus simply by raising the lever 23 so as to lift the pulley 25 from belt 36. The movement of the hoppers will thus be stopped. They can, however, be quickly set in motion by lowering the pulley 25 to the belt. It will thus be seen that choking of the mixing apparatus can be prevented and that both the mixing and feeding mechanism is under the absolute control of the operator.

What is claimed is:

1. In apparatus of the character described the combination with mixing apparatus, and means for actuating the mixing apparatus; of a screen, a hopper located thereunder and disposed to direct material into the mixing apparatus, oscillatory means for simultaneously shifting the screen and hopper in opposite directions, a pulley shiftable into or

out of engagement with the actuating means of the mixing apparatus, and means for transmitting motion through said pulley to the screen and hopper.

2. In a machine of the character described the combination with mixing apparatus and means for operating the same; of feed apparatus thereabove comprising a screen, a hopper disposed thereunder, mechanism for simultaneously shifting the screen and hopper in opposite directions, and means for shifting said mechanism into or out of operative relation with the operating mechanism of the mixing apparatus.

3. In a machine of the character described the combination with mixing apparatus and mechanism for operating the same; of feed mechanism comprising a screen, a hopper thereunder, oscillatory connections between the screen and hopper, means for directing material from the hopper to the mixing apparatus, and mechanism shiftable into or out of operative relation with the operating mechanism of the mixing apparatus for tilting the oscillatory means to simultaneously shift the screen and hopper in opposite directions.

4. In a machine of the character described the combination with mixing apparatus and means for operating the same; of feed mechanism comprising oscillatory devices, a resiliently supported screen pivotally connected to said devices, a hopper supported by said devices below the screen, said screen and hopper being connected to the oscillatory devices above and below their fulcrums respectively, means for transmitting power to the oscillatory devices, and revoluble means movable into or out of operative relation with the operating means of the mixing apparatus for actuating the power transmitting means.

5. In a machine of the character described the combination with mixing apparatus and means for operating the same; of feeding mechanism comprising oscillatory devices, a resiliently supported screen pivotally connected thereto, a hopper supported by said device and below the screen, means movable into or out of operative relation with the operating means of the mixing apparatus for actuating the oscillatory devices, means for directing material from the hopper to the mixing mechanism, and means for controlling the passage of material from said hopper to the mixing mechanism.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

ALFRED G. AXELSON.

Witnesses:

A. R. WALLACE,
CHARLEY SPALDING.