J. A. GASTEIGER.

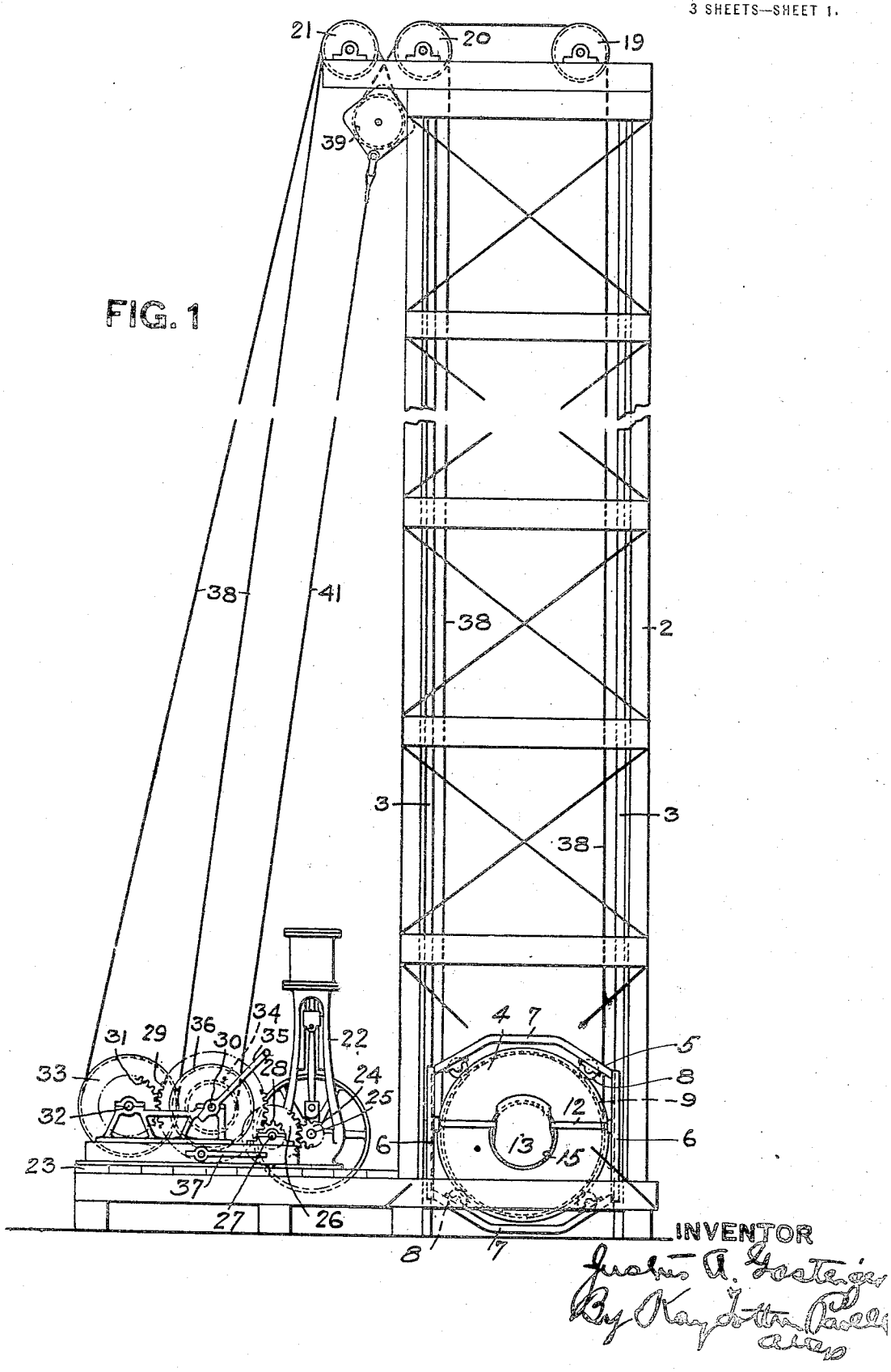
APPARATUS FOR MIXING AND DELIVERING CONCRETE.

APPLICATION FILED AUG. 26, 1919.

1,324,960. Patented Dec. 16, 1919.

3 SHEETS—SHEET 1.

FIG. 1



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3 SHEETS—SHEET 2.

FIG. 4

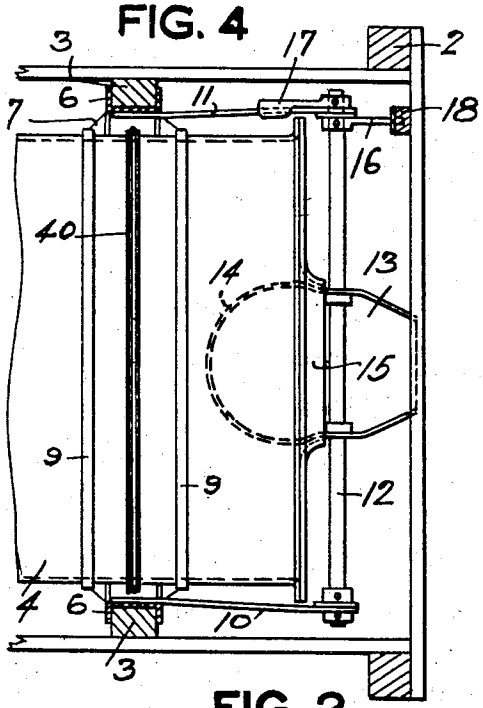


FIG. 2

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APPARATUS FOR MIXING AND DELIVERING CONCRETE.

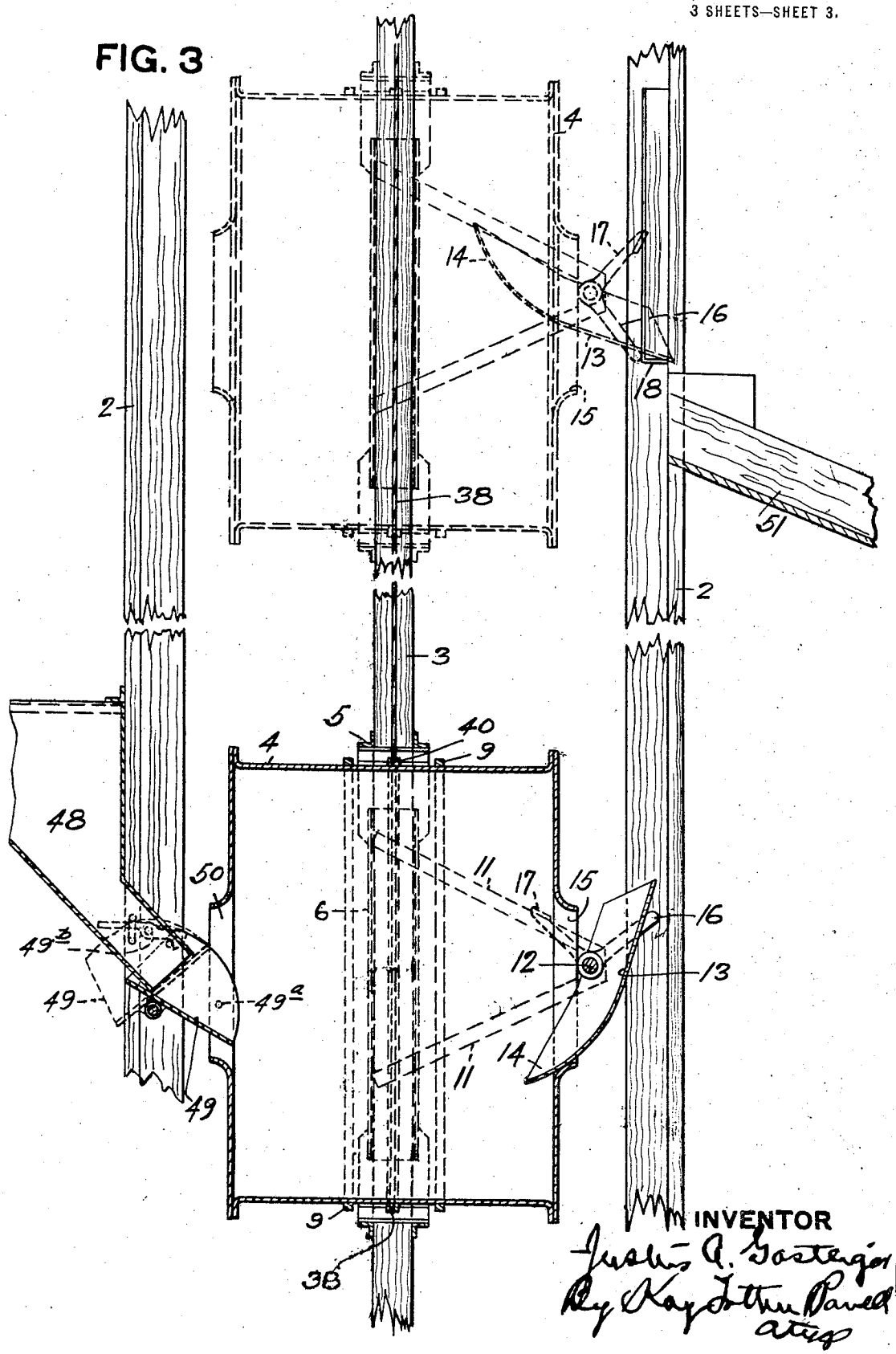
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3 SHEETS—SHEET 3.

FIG. 3



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UNITED STATES PATENT OFFICE.

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APPARATUS FOR MIXING AND DELIVERING CONCRETE.

1,324,960. Specification of Letters Patent. Patented Dec. 16, 1919.

Application filed August 26, 1919. Serial No. 320,064.

To all whom it may concern:

Be it known that I, JUSTUS A. GASTEIGER, a citizen of the United States, and resident of Dormont, Pittsburgh, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Apparatus for Mixing and Delivering Concrete; and I do hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to apparatus for mixing and delivering concrete, and more especially to that type of apparatus in which a tower is employed from which the concrete is delivered by gravity, the concrete being elevated in buckets and discharged into chutes to be delivered to the point where the concrete is to be used.

By my invention I provide for the elevation of the mixer itself to different heights in the tower, the mixer being rotated continuously so that the concrete does not have opportunity to set, or its components become segregated, while at the same time I provide for the automatic discharge of the concrete at a predetermined height in the tower, thereby dispensing with the tower-hoppers heretofore employed, as well as the man located in the tower for operating said hopper. In this way I am enabled to utilize the full height of the tower, furthermore, but one engine is required for mixing and hoisting, thereby creating a great saving in cost and at the same time mixing and delivering in a more efficient and economical manner.

In the drawings Figure 1 is a vertical elevation broken away of my improved apparatus; Fig. 2 is a view at right angles to Fig. 1 partly in section; Fig. 3 is an enlarged view showing the mixer at the bottom of the tower in full lines and at an elevated position in the tower in dotted lines; and Fig. 4 is an enlarged cross-section of the tower showing a portion of the mixer and the manner in which the delivery-pan is mounted.

In the drawing, the numeral 2 designates a tower built up of vertical beams and cross members properly braced to give the requisite strength, and built up to any height desired. Guide strips 3 are provided at apposite sides of the tower which form the guides for the mixer 4 which is supported or carried in the frame 5. This frame is composed of the vertical channel-bars 6 connected by the angular cross-members 7. Idle-rollers 8 are mounted in the frame 5, said rollers engaging the circular track 9 on the mixer. The channel-bars 6 of the frame 5 engage the guides 3 on the tower, and said frame is adapted to move up and down in said guides.

Secured to the channel-bars 6 of the frame 5 are the arms 10 and 11, said arms forming the support for the rocker-shaft 12. Mounted on the rocker-shaft 12 is the delivery pan 13. The normal position of said pan is clearly indicated at the bottom of Fig. 3 in full lines where the inner end 14 of said pan projects into the end opening 15 of the mixer 4.

Secured to one end of the rocker-shaft 12 are the arms 16 and 17, the arm 17 engaging the arm 11 so as to limit the movement of the rocker-shaft 12 as well as the delivery pan 13, and holds said pan in the position indicated in full lines at the lower end of Fig. 3.

The tripper-arm 16 is adapted to engage the stop 18 which is in the path of said arm as the mixer is elevated so as to bring the delivery pan 13 into discharging position, as will more fully hereinafter appear. The stop 18 may be adjusted at different heights on the tower in order to provide for the discharging of the concrete at different heights on the tower.

Mounted at the upper end of the tower 2 are the sheaves 19, 20 and 21.

The engine 22 is mounted on the platform 23. The pinion 24 on the engine shaft 25 meshes with the gear-wheel 26 on the shaft 27. The pinion 28 on the shaft 27 engages the large gear 29 on the shaft 30. The large gear 29 engages the gear-wheel 31 on the shaft 32. The shaft 32 carries the sheave 33.

A drum 34 is mounted loosely on the shaft 30, suitable clutch mechanism (not shown) being provided for operating, and by the clutch-lever 35 for throwing the drum 34 into driving engagement with the large gear 29. A brake-band wheel 36 operated by the lever 37 is provided for controlling the movement of the drum 34.

A cable 38 passes around the sheave 33, said cable passing over the sheave 21 and

around the pulley 39, up over the sheave 20, down around the sheave 40 on the mixer 4, thence up over the sheave 19. By this arrangement rotary movement will be imparted to the mixer 4 as long as the engine is in operation.

A cable 41 is connected to the pulley block 39 and said cable is wound around the drum 34.

At one side of the tower as shown in Fig. 2 is the frame 42 with the working platform 43 and the cement platform 44, a bin 45 for sand and broken stone is provided, said bin having the chute 46 connected therewith with a swinging gate 47 to control the supply of sand and stone to the hopper 48 which delivers the stone, sand and cement to the mixer 4. This arrangement, however, forms no part of my present invention and any suitable arrangement may be employed for delivering the materials to the delivery-hopper 48.

Pivoted to the lower end of the delivery-chute 48 is the extension 49 which extends into the end opening 50 of the mixer 4 so that as said mixer rises the hinged extension 49 will be folded up over the end of the hopper to close the same until the mixer has been lowered into the position to receive another charge, whereupon said hinge extension is lowered. The extension 49 has the stud 49^a which engages a latch 49^b when the mixer 4 moves up so as to swing the extension 49 into the dotted position Fig. 3, thus closing the end of the chute. When it is desired to lower the extension the latch is tripped and the weight of the material lowers said extension.

When my improved apparatus is in operation the mixture of stone, concrete and sand is delivered by the chute 48 into the mixer 4 and with the engine 22 in operation said mixer will revolve by reason of the cable 38 passing around the same. When it is desired to elevate the mixer, the clutch-lever 35 is operated to throw the drum 34 into driving engagement with the shaft 30, whereupon the cable 41 winds up on the drum 34 and the pulley 39 is lowered which acts to elevate the mixer, the frame supporting said mixer moving up the guides 3. When the tripper-arm 16 comes into engagement with the stop 18 the delivery pan 13 will be thrown around into position shown in dotted lines Fig. 3, so that as the mixer revolves, the concrete contained therein is delivered into the pan 13 and passes from said pan into the chute 51 to be delivered by gravity to the point where it is to be used. When the contents of the mixer has been delivered by the pan 13 into the chute 51 the mixer is lowered to receive another charge and the delivery pan 13 of its own weight resumes its normal position.

The mixer rotates continuously during its ascent in the tower, and consequently there is no opportunity for the concrete to set or the material to be segregated. Furthermore, the mixer rotates continuously and it is not necessary to bring it to a state of rest either for receiving the charge or during the discharge of the contents when the mixer has been elevated in the tower.

Only one engine is required for the work, as the same engine which rotates the mixer also elevates the same, and as the mixer can be elevated to the top of the tower, the full height of the tower is utilized. By changing the position of the stop-bar 18 it will be apparent that the delivery-pan may be brought into action at any desired point.

What I claim is:

1. In apparatus for the mixing and delivering of concrete, the combination of a tower, a frame vertically movable therein, a mixer carried by said frame, means for elevating said frame, means for rotating said mixer, a delivery device carried by said frame, and means for bringing said delivery device into position to discharge the contents of said mixer when elevated to the desired height.

2. In apparatus for mixing and delivering concrete, the combination of a tower, a frame vertically movable therein, a mixer mounted on said frame, a tiltable delivering device mounted on said frame, means for elevating said frame, means for rotating said mixer, and means in the path of said delivery device for bringing said delivery device in position to discharge the contents of said mixer when said mixer has been elevated to the desired height.

3. In apparatus for mixing and delivering concrete, the combination of a tower, a frame vertically movable therein, a mixer carried by said frame, means for elevating said frame, means for rotating said mixer, a tiltable delivery device carried by said frame, and a stop in the path of said delivery device whereby said delivery device is tilted to discharge the contents of said mixer when said mixer has reached the desired height.

4. In apparatus for mixing and delivering concrete, the combination of a tower, a frame vertically movable therein, a mixer carried by said frame, means for elevating said frame, means for rotating said mixer, a rocker-shaft carried by said frame, a delivery device mounted on said shaft, a trip arm on said shaft and a stop on said tower in the path of said trip-arm, whereby said delivery device is tilted to discharge the contents of said mixer when said mixer reaches the predetermined height.

5. In apparatus for mixing and delivering concrete, the combination of a tower, a frame vertically movable therein, a mixer carried by said frame having an open end, means for elevating said frame, means for

rotating said mixer, and a delivery device carried by said frame and projecting through said opening in said mixer.

6. In apparatus for mixing and delivering concrete, the combination of a tower, a frame vertically movable therein, a mixer carried by said frame having an open end, means for elevating said frame, means for rotating said mixer, and a tiltable delivery device carried by said frame and projecting into the open end of said mixer.

In testimony whereof, I, the said JUSTUS A. GASTEIGER, have hereunto set my hand.

JUSTUS A. GASTEIGER.

Witnesses:
T. B. HUMPHRIES,
ROBT. D. TOTTEN.