J. J. DROUGHTON.

COMBINED MIXING AND ELEVATING DEVICE.

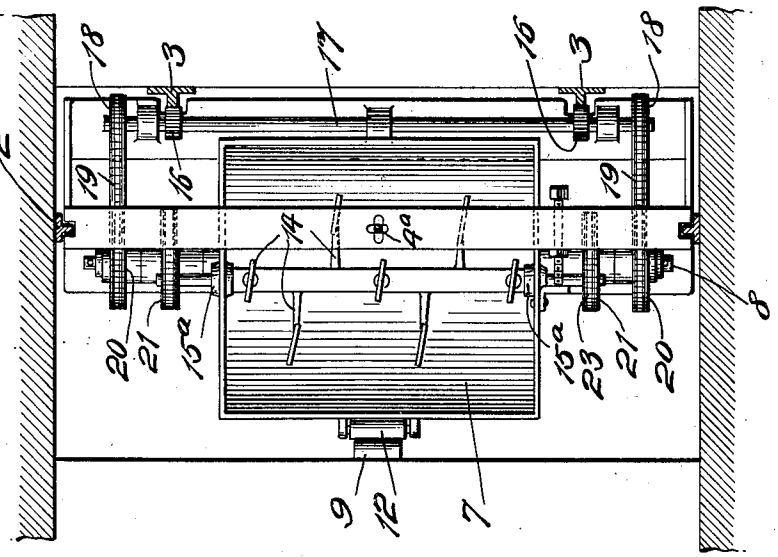
APPLICATION FILED JAN. 29, 1915.

1,198,530.

Patented Sept. 19, 1916.

2 SHEETS—SHEET 1.

Fig. 2.



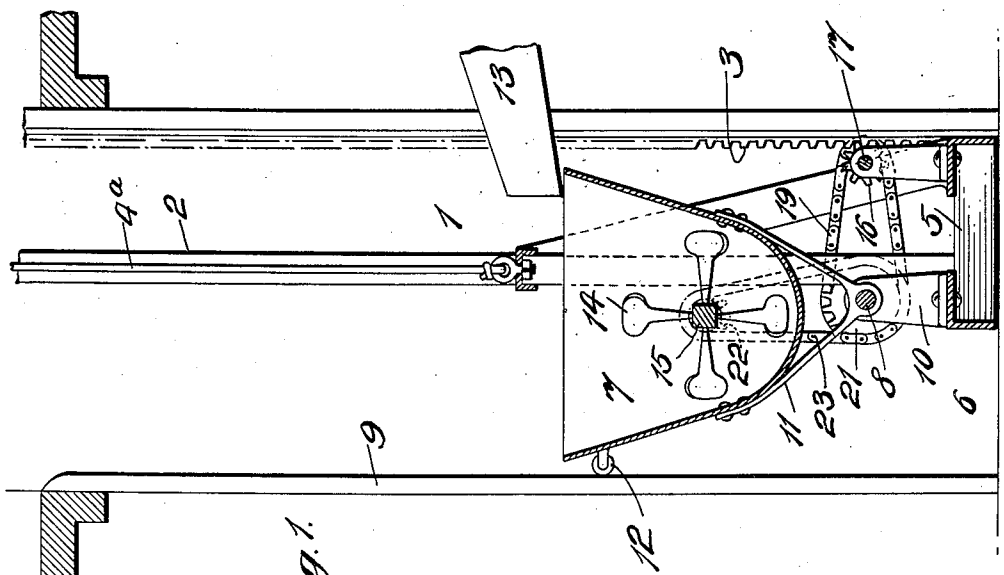


Fig. 1.

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2 SHEETS—SHEET 2.

Fig. 3.

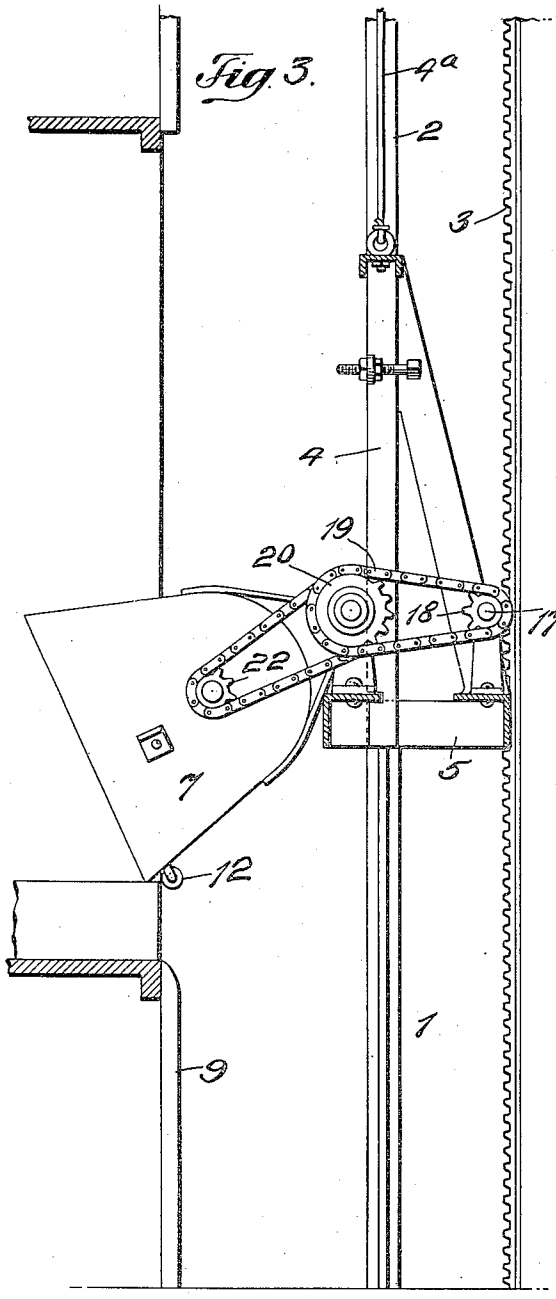
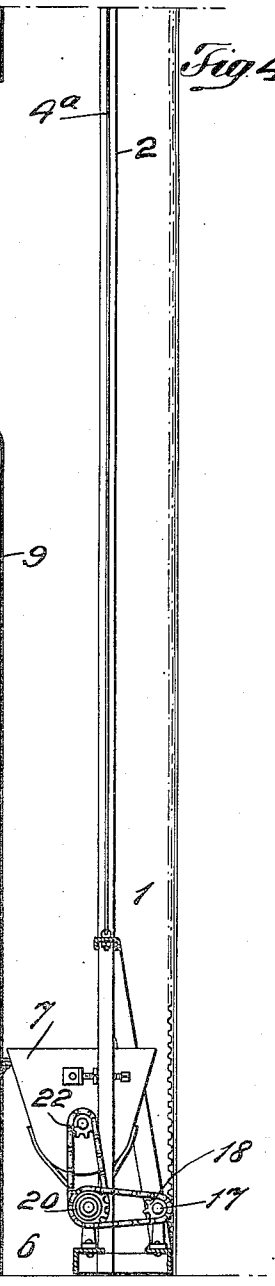


Fig. 4.



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COMBINED MIXING AND ELEVATING DEVICE.

1,198,530. Specification of Letters Patent. Patented Sept. 19, 1916.

Application filed January 29, 1915. Serial No. 5,003.

To all whom it may concern:

Be it known that I, JOSEPH J. DROUGHTON, a citizen of the United States, and a resident of the city of Newark, county of Essex, and State of New Jersey, have invented certain new and useful Improvements in Combined Mixing and Elevating Devices, of which the following is a specification.

This invention relates to improvements in combined mixing and elevating devices.

By the use of my invention I am enabled to produce a device which will not only simultaneously mix and elevate concrete or like material effectively but will automatically dump its load at any desired floor of a building, and furthermore will insure a dumping of the entire load of mixed concrete or like material at the desired floor without the use of specially-rigged devices.

A feature of my invention is the provision in an elevator shaft of one or more vertically disposed stationary toothed racks, an elevating device adapted to be moved vertically in said shaft and having a mixing chamber adapted to contain a suitable charge of material to be mixed and means actuated by engagement with the said rack for agitating the charge in the mixing chamber during the movement of the elevating device in the shaft.

In the accompanying drawings in which similar reference characters designate corresponding parts throughout the several views, Figure 1 is a vertical central section of a device embodying my invention in position to be charged; Fig. 2 is a plan view of the device shown in Fig. 1; Fig. 3 is a side elevation, partly in section of said device in the act of dumping; and Fig. 4 is a side elevation of a shaft several stories in height and illustrating my sectional track arrangement.

In the preferred form of my invention illustrated in said drawings, a suitable elevator shaft 1 is provided with guide rails 2—2 preferably located, as shown, at opposite sides of the shaft and to one side of the transverse center thereof and two vertically disposed stationary toothed racks 3—3 located at the rear side of the shaft and on opposite sides of the center of such rear side. An elevator 4 is moved vertically within the shaft 1 by any suitable means such as the rope 4^a. Said elevator has a suitable frame work engaging the guide rails at opposite sides and is provided with a supporting platform 5 preferably extending only a part of the distance transversely across the shaft so that considerable shaft space 6 contiguous to the front side of said shaft 1 will be open and unobstructed by the said platform.

A mixing chamber 7, preferably comprising a bucket, is mounted upon said platform 5 and is preferably so pivotally mounted on a suitable shaft 8 as to normally tilt toward the front of the said elevator shaft and has an anti-friction bearing against a rail 9 on the front side of the shaft to retain said mixing chamber in upright or load carrying position. As shown, the shaft is journaled in bearings 10 supported on the platform 5 and the bucket is mounted above the same by yoke straps 11—11 and said bucket has a roller 12 engaging and running upon the rail 9.

Suitable means such as the chute 13 is provided for charging the bucket with a load of material to be mixed, and suitable means, preferably comprising paddles or agitating arms 14 rotated by means of a suitable shaft 15 extending within and through opposite sides of the bucket are provided for agitating and mixing the material within the bucket or mixing chamber. If desired, stuffing boxes 15^a—15^a for the shaft may be provided. The said mixing shaft 15 is driven or actuated by the engagement or meshing, during the vertical movement of the elevating platform in the shaft, of suitable transmission devices with the racks 3—3, such transmission devices being preferably so arranged as to transmit rotation to said shaft and at the same time permit its distance from the rack to be varied to enable the bucket to be dumped automatically. As illustrated, pinions 16—16 fixed on a shaft 17 mounted on the platform 5, mesh with the racks 3—3. Keyed to said shaft 17 are sprockets 18—18 which transmit rotary movement by sprocket-chains 19—19 to sprockets 20—20 loose on the pivotal shaft. Sprockets 21—21 also loose on said shaft but locked to and rotating with the sprockets 20—20 in turn communicate rotary movement through chain 23 to sprockets 22—22 on the mixing shaft 15 and permit the bucket to be dumped

automatically and cause the mixing shaft to be revolved during the dumping operation to procure a cleaning out of the bucket.

If desired, the racks 3—3 may be suitably located to permit a start of the hoisting operation before the mixing begins and may be of a length sufficient only to completely mix the concrete or other like substance, the hoist throughout the balance of the shaft being free of such mixing engagement. In the latter case, however, I preferably locate a short rack-section contiguous to the floor at which it is desired to dump in order to cause an effective rotation of the agitating arms or paddles during the automatic dumping operation.

Many modifications of my said invention will suggest themselves to those skilled in the art, as for example, the mixing chamber might be in the form of a rotating barrel instead of the bucket with agitating arms as shown.

Having described my invention, I claim:

1. The combination with a suitable guiding structure, of a toothed rack suitably supported on said structure, a platform movable along said guiding structure adjacent to said rack, a pivot shaft mounted upon said platform, a mixing compartment mounted upon said pivot shaft to swing laterally of said shaft, means for normally retaining said mixing compartment in upright position, agitating means extending within said compartment, and power transmission means for actuating said agitating means by engagement with the said rack during the movement of the platform and adapted to permit a varying of the distance between said agitating means and rack to allow the mixing compartment to be swung laterally on its pivot to dump.

2. The combination with a suitable guiding structure, of a toothed rack suitably supported on said structure, a platform movable along said structure adjacent to said rack and means for moving said platform, a bucket pivotally mounted on said platform, means for retaining said bucket in a vertical position, a shaft extending within said bucket and having agitating arms, and power transmission means for said agitating arms actuated by engagement with said rack during movement of the elevator and adapted to permit a varying of the distance between said rack and mixing shaft to allow the bucket to dump.

3. The combination with a suitable elevator shaft, of a stationary vertically-disposed toothed rack located within said shaft, an elevator frame and means for guiding and moving the same vertically within said shaft; a bucket pivotally mounted on said frame, means for causing said bucket to be normally retained in upright position and adapted upon withdrawal to permit dumping of said bucket, a shaft extending within said bucket having agitating arms connected thereto and means on said frame meshing with said stationary rack during movement of the elevator frame to rotate said shaft.

4. The combination with a suitable elevator shaft, of a stationary vertically-disposed toothed-rack located within said shaft, an elevator movable within said shaft and having a platform extending from the rear toward the front of said elevator shaft less in area than said shaft to provide an unobstructed shaft-space contiguous to the front of said shaft, a bucket pivotally mounted upon said platform and adapted to dump toward the front side of said shaft, a shaft provided with agitating arms extending within said bucket and means actuated by engagement with said stationary rack for rotating said shaft during the movement of the elevator within the elevator shaft.

5. The combination with a suitable elevator shaft, of a stationary vertically-disposed toothed-rack located within said shaft, an elevator movable within said elevator shaft, a bucket mounted on said elevator to tilt normally toward one side of the shaft and provided with a roller, a track having sections removably mounted at the side of the said elevator shaft toward which said bucket tilts and upon which said roller may roll, a shaft provided with agitating arms extending within the bucket and power transmission means for said agitating arms actuated by engagement with the said rack during vertical movement of the elevator and adapted to permit the distance between said rack and mixing shaft to vary to allow the bucket to dump automatically upon the removal of a track section.

6. The combination with a suitable elevator shaft, of a stationary vertically-disposed toothed-rack located within said shaft, an elevator movable within said shaft and having a platform extending from the rear of the shaft toward the front side of the elevator shaft less in area than said shaft to provide an unobstructed shaft space contiguous to the front of the elevator shaft, a shaft mounted on said platform in contiguity to said stationary rack, a pinion fixed on said shaft engaging said rack, another shaft mounted on said platform and disposed centrally in said shaft, a bucket pivotally mounted on said last mentioned shaft, an agitating shaft extending within said bucket and provided with paddles, means for communicating rotation from the first mentioned shaft to the second and from the second mentioned shaft to the agitating shaft, whereby the distance between the rack and agitating shaft may be varied and the bucket may be automatically dumped.

7. The combination with a suitable elevator shaft, of a stationary vertically-dis-

posed toothed rack located within said elevator shaft, an elevator movable within said elevator shaft and having a platform extending from the rear of the elevator shaft toward the front side thereof less in area than said shaft to provide an unobstructed shaft space contiguous to the front of the elevator shaft, a shaft mounted on said platform in contiguity to said stationary rack, a pinion fixed on said shaft engaging said rack, another shaft mounted on said platform and disposed centrally in said elevator shaft, a bucket pivotally mounted on said last mentioned shaft, an agitating shaft extending within said bucket and provided with paddles, means comprising sprocket wheels and sprocket chains coöperating with such sprocket wheels to transmit power from the first mentioned shaft to the second and thence to the agitating shaft, whereby the distance between the rack and agitating shaft may be varied and the bucket may be automatically dumped.

In witness whereof I have signed my name to the foregoing specification in the presence of two subscribing witnesses.

JOSEPH J. DROUGHTON.

Witnesses:

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