

F. MILLER.  
ELEVATOR AND CONVEYER FOR CONCRETE MIXERS.  
APPLICATION FILED OCT. 7, 1910.

1,066,302.

Patented July 1, 1913.

4 SHEETS-SHEET 1.

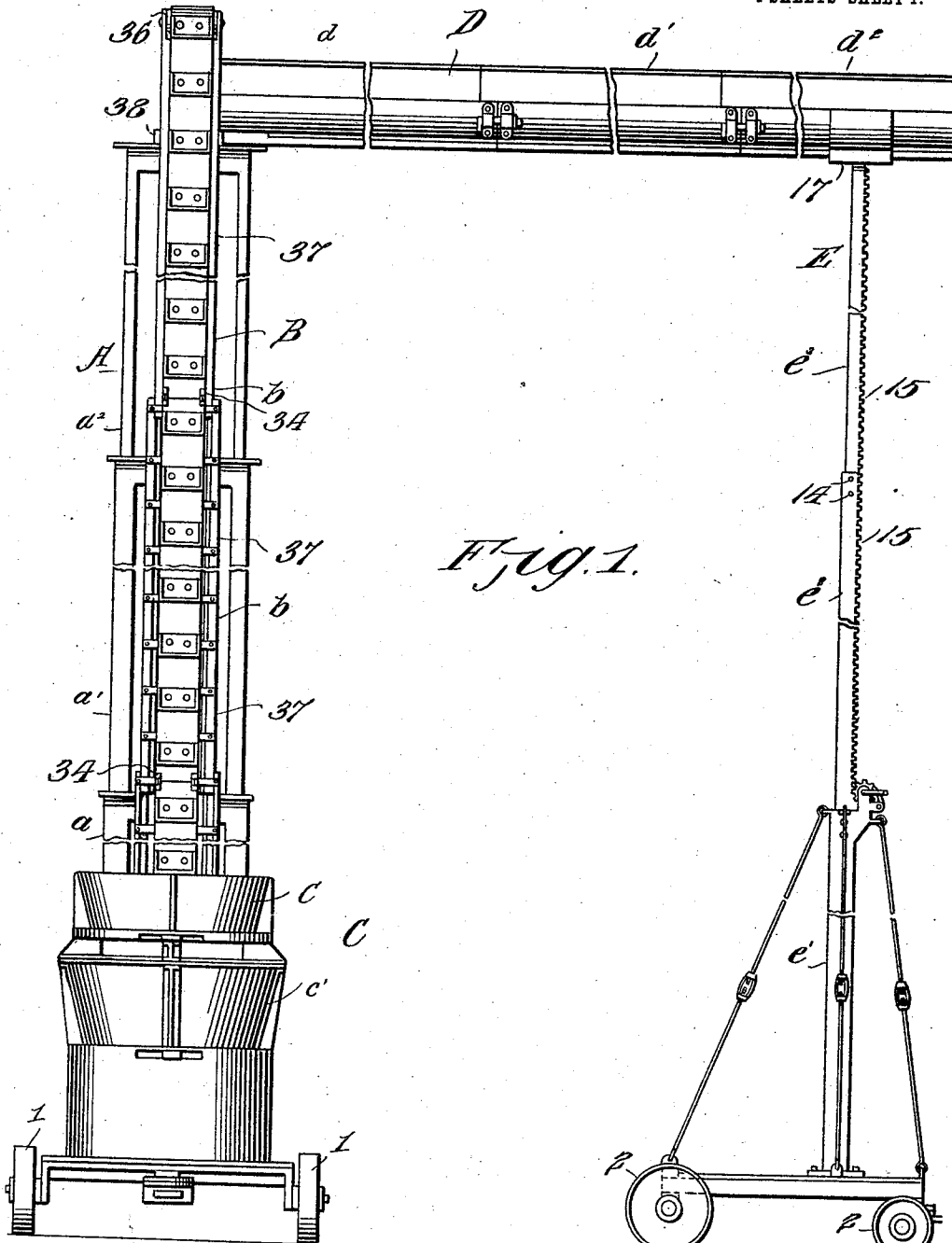


Fig. 1.

Witnesses  
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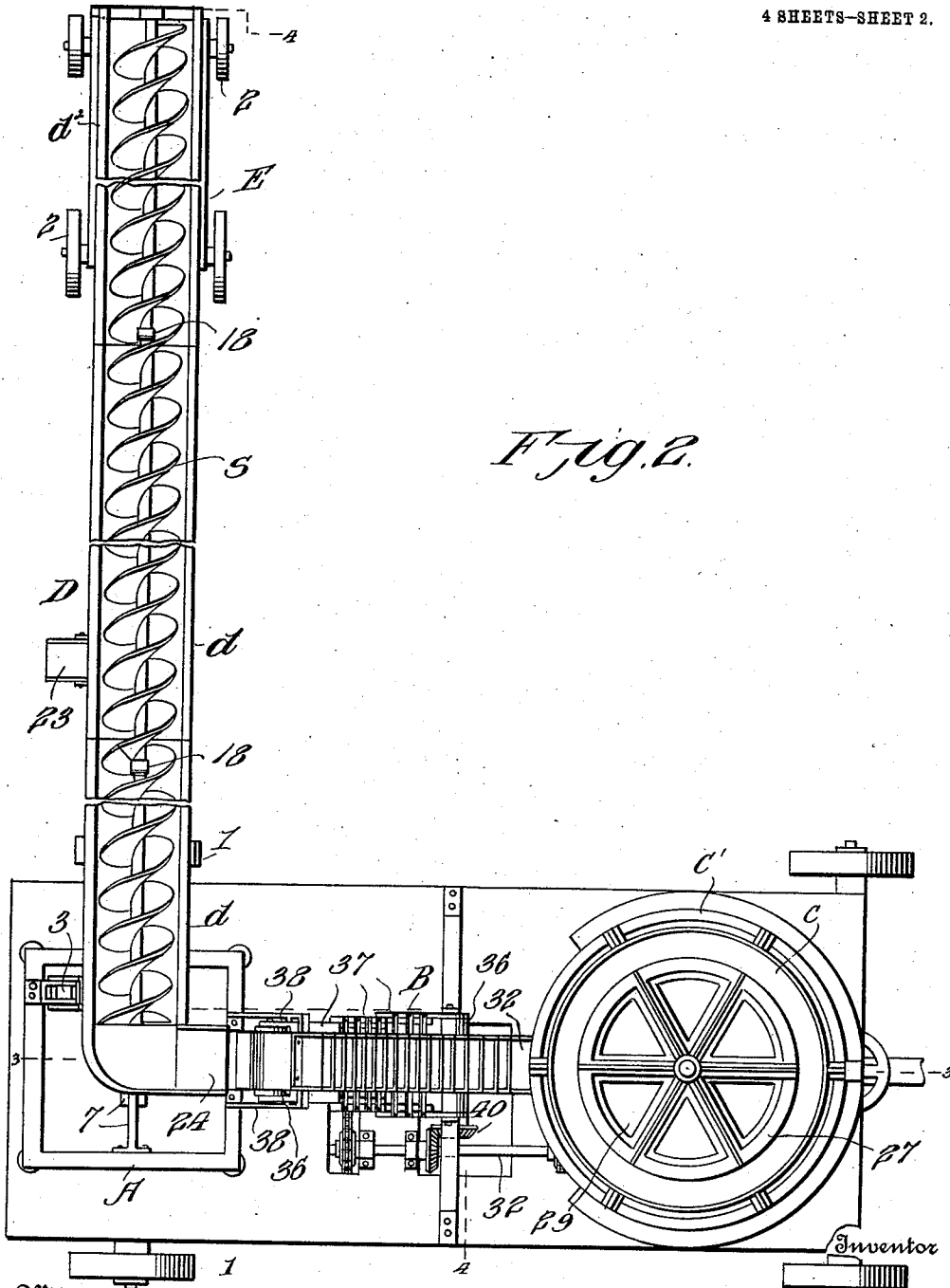


Fig. 2.

Witnesses  
Frank Hough  
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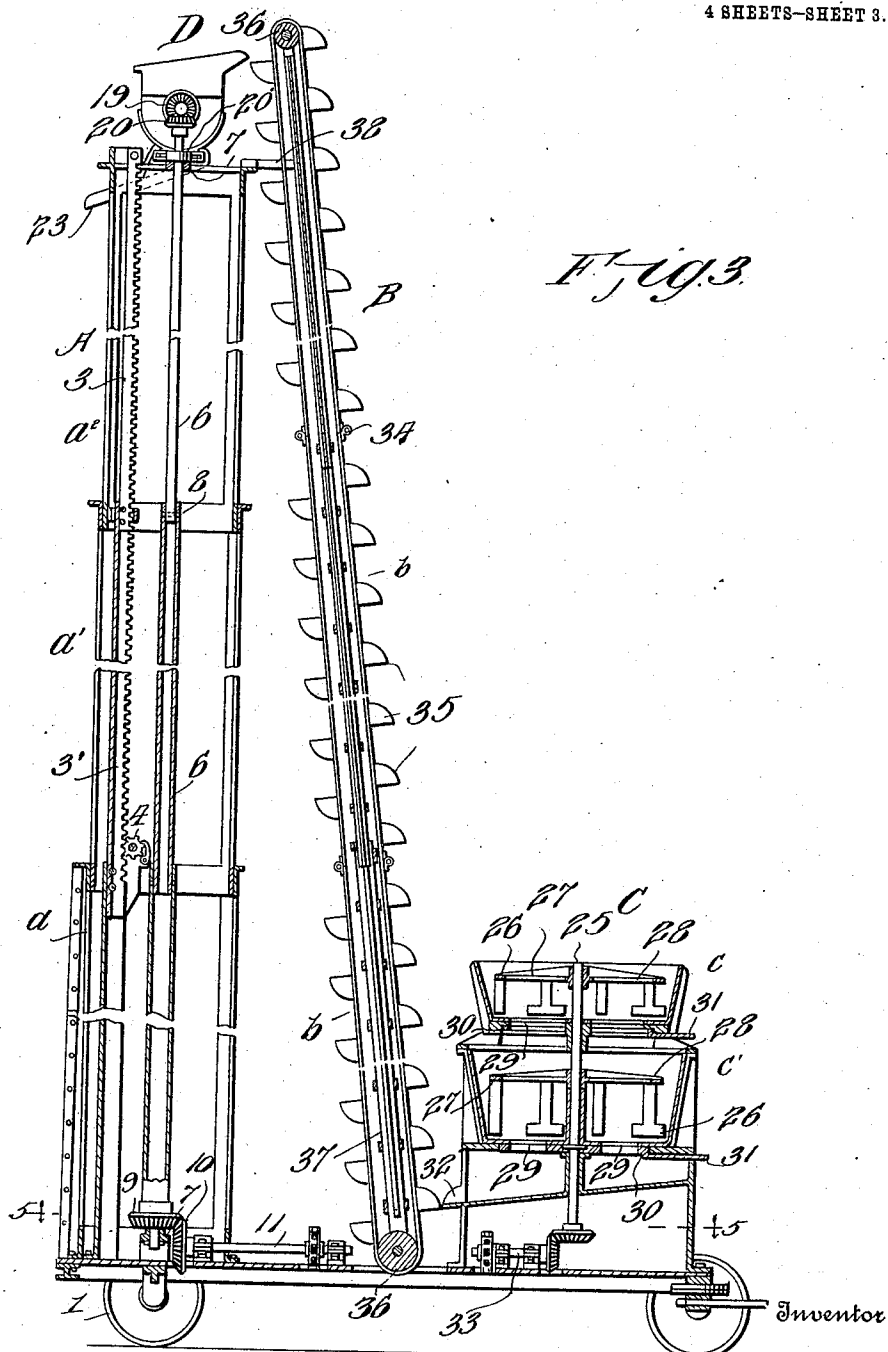
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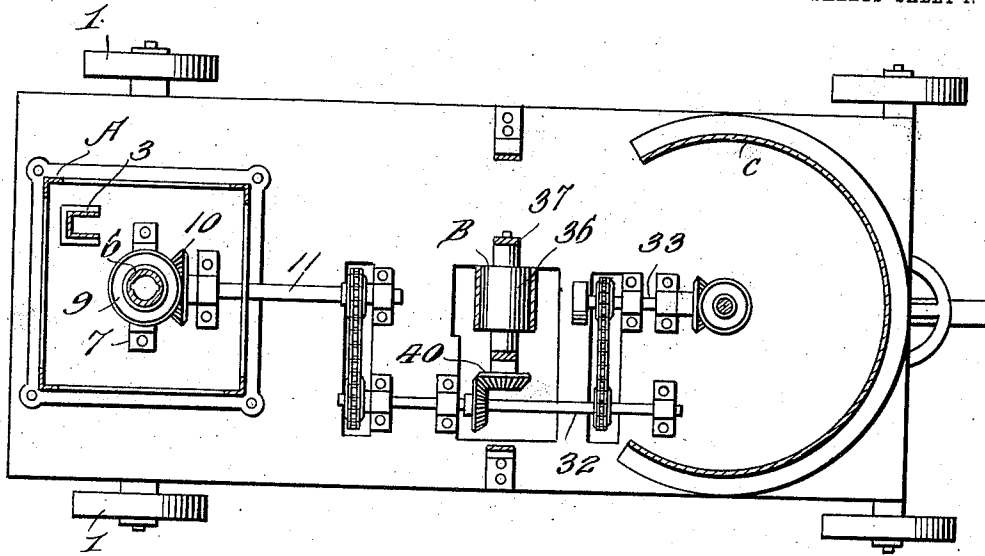


Fig. 4.

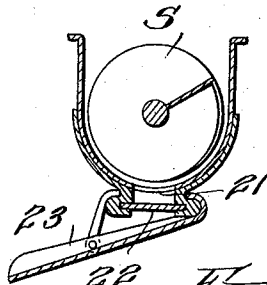


Fig. 5.

Witnesses  
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# UNITED STATES PATENT OFFICE.

FREDERICK MILLER, OF PORT ARTHUR, TEXAS.

ELEVATOR AND CONVEYER FOR CONCRETE-MIXERS.

1,066,302.

Specification of Letters Patent.

Patented July 1, 1913.

Application filed October 7, 1910. Serial No. 585,854.

*To all whom it may concern:*

Be it known that I, FREDERICK MILLER, a citizen of the United States, residing at Port Arthur, in the county of Jefferson and State of Texas, have invented new and useful Improvements in Elevators and Conveyers for Concrete-Mixers, of which the following is a specification.

This invention relates to a concrete mixing and feeding machine which is especially adapted for use in the construction of buildings.

The invention has for its principal object to provide a machine of this character which includes a novel arrangement and combination of mixing device, elevator and conveyer, whereby the mixed concrete can be fed to the wall mold at different elevations, the elevator being extended and the conveyer raised for constructing the successive stories of the building.

Another object of the invention is the provision of a novel derrick or tower composed of telescoping sections whereby the derrick can be vertically extended to form a support for the upper end of the elevator and for the conveyer.

A further object is the employment of a novel, portable and extensible support for the discharge end of the conveyer.

A further object is to provide an endless elevator made up of sections so that the elevator can be lengthened from time to time as story after story of the wall is built.

With these objects in view and others, as will appear as the description proceeds, the invention comprises the various novel features of construction and arrangement of parts which will be more fully described hereinafter and set forth with particularity in the claims appended hereto.

In the accompanying drawings, which illustrate one embodiment of the invention, Figure 1 is a side view of the apparatus. Figure 2 is a plan view thereof. Fig. 3 is a vertical section through the mixing apparatus. Fig. 4 is a horizontal section through the derrick. Fig. 5 is a detail view of a portion of the conveyer.

Similar reference characters are employed to designate corresponding parts throughout the several views.

Referring to the drawings A designates a derrick or tower, which is mounted on wheels 1 so as to be conveniently portable and at one side of the derrick and also supported

by the wheels 1 is an elevator B that receives concrete from a mixing apparatus C, which is supported by the wheels 1, the elevator serving to carry mixed concrete to the top of the derrick where it discharges into an approximately horizontal conveyer D, which has one end supported on the top of the derrick and the other end supported by a pole or standard E. This standard is provided with wheels 2 so that it can be conveniently wheeled from place to place.

The tower A consists of telescoping sections  $a$ ,  $a'$  and  $a^2$  which are slidable vertically so that the tower can be vertically extended or contracted, the object being to raise the conveyer D to one story after another as the wall is constructed. On the sections  $a'$  and  $a^2$  are vertical racks 3 and 3' with which a pinion 4 is adapted to engage for raising first section  $a^2$  to its full height and then to raise the sections  $a'$  and  $a^2$  together. After the section  $a^2$  has been fully raised the lower end of the rack 3 is bolted or fastened to the upper end of the rack 3' of the section  $a'$ , so that the pinion will engage with the latter, and, by further rotation, the pinion will raise both sections together. The pinion can be operated by a hand crank 5 or any other suitable means.

Extending longitudinally of the tower is a rotary shaft 6 made up of telescoping sections so that the shaft will be lengthened or shortened at the same time the tower is, the upper and lower ends of the shaft being journaled in bearings 7 in the upper end of the section  $a^2$  and at the bottom of the tower. The sections of the shaft can be connected together by pins or bolts 8 that pass through openings. This shaft is intended to impart power to the screw of the conveyer D and the shaft has at its lower end a miter gear 9, which meshes with a miter gear 10 on the power shaft 11 carried by the supporting vehicle for the tower.

The support E is made up of sections  $e'$ ,  $e^2$  and  $e^3$  that telescope one with respect to the other and these sections can be fastened together in different positions by bolts 14 passing through registering openings in the sections so that the support or standard can be made of any desired length. The sections  $e'$  and  $e^2$  have rack teeth 15 with which is adapted to mesh a pinion 16 supported on the lower section  $e$  and operated by a crank so as to vertically extend or contract the support E. The upper end of

the section  $e^2$  has a plate or cradle 17 on which the discharge end of the conveyer D rests.

The conveyer D consists of a trough made into sections  $d$ ,  $d'$  and  $d^2$  that are suitably fitted together and extending longitudinally of this trough is a screw S, which is also made in sections that are detachably connected at joints 18. One end of the screw has a miter gear 19 that meshes with a miter gear 20 on the vertical shaft in the derrick so that the latter shaft will rotate the screw and cause the material to be fed longitudinally of the trough and finally discharged into the wall mold. In the bottom of the trough may be provided one or more openings 21 normally closed by slides 22 and by opening a slide mixed concrete can be discharged upon a chute 23 for any desired purpose, the said chute being capable of attachment to the trough adjacent the openings. The receiving end of the trough is formed with a spout or chute 24 that is disposed at the top of the tower or derrick so as to receive the concrete from the elevator D and conduct it to the trough of the conveyer.

The mixer C is made in the form of two tanks  $c$  and  $c'$  that are disposed one above another, the upper one serving to receive the dry material to be mixed and the lower one to mix the material with water. A rotary shaft 25 extends vertically through the tanks and is provided with agitating blades 26 in each tank, the said blades being carried by horizontal plates or disks 27 that have openings 28 through which the material passes into each tank. Each tank has openings 29 in its bottom that are closed by a rotary valve 30 that has ports or openings so that by throwing the openings of the valves into register with the openings in the bottom of the tanks the dry mixed material can pass from the upper tank to the lower one and the wet mixed material can pass out of the lower tank, each valve having a handle 31. Under the bottom tank is a discharge chute or spout 32 that delivers the mixed material to the elevator. The agitator shaft is operatively connected to a horizontal drive shaft 33 which can be operated by a gasoline, electric or other motor, this latter shaft also being operatively connected with the shaft 11.

The elevator B consists of an endless belt made up of sections  $b$  that are detachably fastened together end to end at 34 and in each section are buckets 35. The bucket-carrying belt passes around rollers 36 arranged at the top and bottom of an extensible beam or support 37, which is made of slidably connected or telescoping sections. The upper end of the beam rests on arms

38 at the top of the tower or derrick and when the derrick is extended the bucket-carrying belt is lengthened by applying a new section thereto and the beam 37 is also extended. The lower roller 36 has a miter gear 40 which meshes with the miter gear on the driving shaft so that the elevator belt will operate whenever the mixer is operating. As the material discharges from the mixer it will empty into the buckets on the belt and be carried upwardly thereby, the buckets discharging into the conveyer D when they reach the top of the elevator.

From the foregoing description, taken in connection with the accompanying drawings, the advantages of the construction and of the method of operation will be readily apparent to those skilled in the art to which the invention appertains, and while I have described the principle of operation of the invention, together with the device which I now consider to be the best embodiment thereof, I desire to have it understood that the device shown is merely illustrative, and that such changes may be made when desired as are within the scope of the claims appended hereto.

Having thus described the invention what is claimed as new, is:—

1. In a machine of the class described, the combination of an extensible derrick consisting of telescopic sections, an endless elevator disposed at one side of said derrick and including a longitudinally extending support for said elevator consisting of telescopic sections adjustably supported by the upper end of the said derrick in spaced relation thereto, and means mounted within the said sections and extending longitudinal thereof and operating to move said sections and conveyer simultaneously to an adjusted position.

2. In a machine of the class described, the combination of an extensible derrick consisting of telescopic sections, means for moving said sections to an adjusted position, an endless conveyer longitudinally disposed at one side of the derrick and including a shaft of telescopic sections, one of said sections being provided with horizontally disposed arms engaging the upper end of said derrick to support said conveyer in proper spaced converging relation thereto, and to move said conveyer to an adjusted position simultaneously on movement of said derrick to its adjusted position.

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

FRED. MILLER.

Witnesses:

G. J. NOACK,

THOS. M. DONALDSON.