

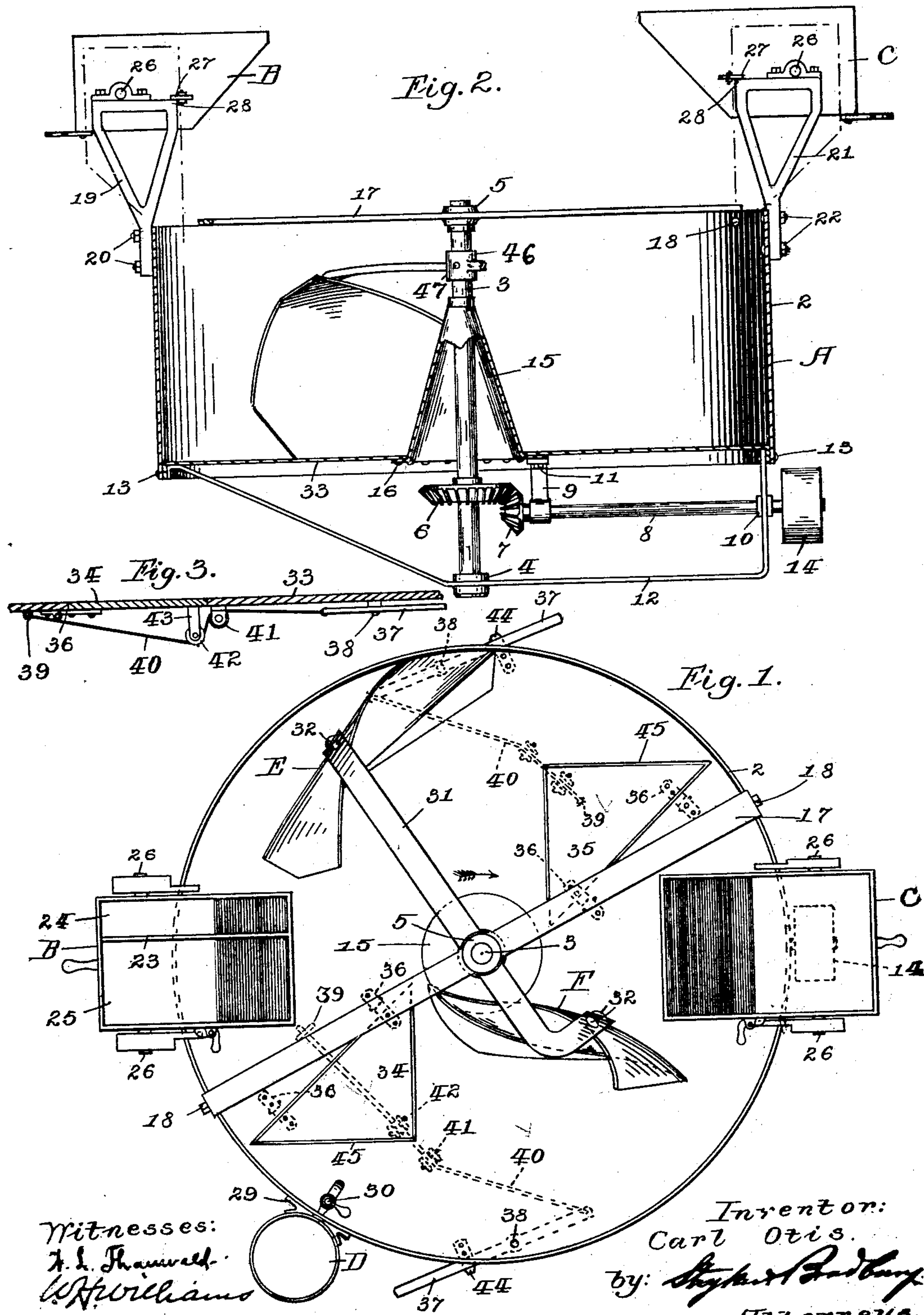
No. 702,881.

Patented June 17, 1902.

C. OTIS.
CONCRETE MIXING MACHINE.

(Application filed Mar. 18, 1901.)

(No Model.)



UNITED STATES PATENT OFFICE.

CARL OTIS, OF LINDSTROM, MINNESOTA.

CONCRETE-MIXING MACHINE.

SPECIFICATION forming part of Letters Patent No. 702,881, dated June 17, 1902.

Application filed March 18, 1901. Serial No. 51,592. (No model.)

To all whom it may concern.

Be it known that I, CARL OTIS, a citizen of the United States, residing at Lindstrom, in the county of Chisago and State of Minnesota, have invented new and useful Improvements in Concrete-Mixing Machines, of which the following is a specification.

My invention relates to improvements in concrete-mixing machines. Its object is to produce a simple machine that will quickly and efficiently mix cement, water, sand, and gravel or other materials for forming concrete. Heretofore it has been the general custom to perform this work by hand. With my machine this is accomplished automatically and in a more efficient manner.

In the accompanying drawings, forming part of this specification, Figure 1 is a plan view of my improved concrete-mixing machine. Fig. 2 is a longitudinal sectional view of Fig. 1. Fig. 3 is a detail sectional view of one of the doors in the receiving-receptacle of my improved concrete-mixing machine.

In the drawings let A represent the mixing-receptacle, which is preferably provided with the circular wall 2. The vertical shaft 3 is journaled centrally in the mixing-receptacle by the journal-bearings 4 and 5. This shaft is driven by the beveled gear 6 and pinion 7. The pinion 7 is carried by the counter-shaft 8, which is journaled in the bracket 9 and the bearing 10. The bracket 9 is fastened to the frame of the mixing-receptacle by bolt 11, and the journals 4 and 10 are carried by the supporting-arm 12, which is fastened to the frame of the mixing-receptacle by bolts 13. The counter-shaft 8 is driven by the drive-pulley 14 or by any other suitable means. The conical shell 15 is fastened to the base of the mixing-receptacle by bolts 16 and is used for the purpose of protecting the vertical shaft from the concrete when the machine is in operation. The vertical shaft passes through the conical shell. The journal 5 is carried by the supporting-arm 17, which is fastened to the circular wall of the receptacle by bolts 18.

In operation the measuring-buckets B and C are respectively adapted to receive and measure the cement and sand and the gravel which are to be mixed in the receptacle A. The bucket B is journaled in the frame 19,

which is bolted at 20 to the circular wall of the mixing-receptacle, and the measuring-bucket C is journaled in the frame 21, which is also bolted to the wall 2 by bolts 22. The measuring-buckets vary in size according to the amounts of cement, sand, and gravel used in the concrete. As shown in Fig. 1, the bucket B is provided with the dividing-wall 23. The portion 24 of this bucket is adapted to receive the cement and the portion 25 the sand. The bucket C receives the gravel. When the buckets are filled, they are turned by hand on their journals 26 to the position indicated by the broken lines in Fig. 2 and their contents emptied into the mixing-receptacle. When emptied, they are returned to their normal position, as shown by the full lines in Fig. 2, where they are retained by the locks 27, which are adapted to impinge against the shoulders 28, respectively, of the frames 19 and 21. The water-tank D is fastened to the circular wall of the mixing-receptacle by the frame 29. This tank is provided with the faucet 30 and is adapted to hold the requisite amount of water to be used for the concrete.

The vertical shaft 3 carries the mixing-blades E and F by the supporting-arm 31, which is fastened to the blades by the rivets 32 and to the vertical shaft by the collar and bolt 46 and 47. These blades are positioned in the receiving-receptacle and are adapted to revolve with the shaft in the direction of the arrow shown in Fig. 1. The blade F faces toward the outer wall of the receptacle and the blade E toward the conical shell 15. The relative positions and shapes of the blades are such that the cement, water, sand, and gravel are turned back and forth and thoroughly mixed when the machine is in operation.

While I have shown two mixing-blades, it is obvious that any number may be used to accomplish the desired results without departing from the principles which I have applied.

The floor 33 of the mixing-receptacle is provided with the doors 34 and 35, which are hinged at 36. These doors are opened and closed by the lever-arms 37, which are pivoted at 38 to the floor and connected at 39 to the floors by the cables 40. These cables pass

over the pulley-sheaves 41, which are carried by the base of the receiving-receptacle, and over the pulleys 42, which are carried by the arms 43 (shown in Fig. 3) on the doors. As shown in Fig. 1, the doors are in closed position and locked by the catches 44 on the frame of the receptacle. These catches engage the free ends of the levers 37. By releasing the catches the levers swing outwardly and the doors open. When open, the revolving-blades E and F empty the concrete through the open doorways 45. When the receiving-receptacle is empty and the doors closed, the receiving-receptacle is in readiness for another charge of sand, cement, gravel, water, &c., from the buckets and the water-tank.

Having described my invention, what I claim as new, and desire to protect by Letters Patent, is—

1. A machine of the class set forth consisting in combination with a mixing-receptacle having outer and inner walls, a pair of mixing-blades facing said outer and inner walls, so as to turn the contents of the receptacle back and forth at each revolution, a vertical shaft passing centrally through said receptacle by which said blades are revolved, means for driving the shaft so as to revolve the blades between said walls, and a system of outlets in the base of said receptacle, adapted to empty the same.

2. A concrete-mixing machine consisting in combination with a mixing-receptacle having circular outer and conical inner walls, of a vertical shaft passing through the center of said receptacle, a pair of curved mixing-blades facing said outer and inner walls, adapted to turn the contents of said receptacle back and forth at each revolution and carried by said shaft, means for rotating said blades by said shaft, a system of outlets in the base of said receptacle, through which the concrete may be emptied, and a system of levers and doors, by which said outlets may be opened and closed.

3. A machine of the class set forth consisting in combination, of a mixing-receptacle

having outer and inner walls, a vertical shaft passing through the center of said receptacle, a pair of mixing-blades carried by said shaft and adapted to turn the contents of the receptacle back and forth at each revolution, means for rotating said blades by said shaft, a plurality of outlets in the base of the receptacle, a system of doors in said outlets and hand-levers for opening and closing said doors, measuring-buckets pivoted on said receptacle for the cement, sand, &c., to be used for the concrete, and a system of catches for holding said buckets in normal position, said buckets adapted, when released from said catches, to tilt down so as to empty into said receptacle.

4. A concrete-mixing machine, consisting in combination with a mixing-receptacle, having circular outer and conical inner walls, of a vertical shaft passing centrally through said receptacle, a pair of curved mixing-blades positioned in diametral alinement between said walls and carried by said shaft, means for revolving said blades between said walls, and an outlet in the base of said receptacle, adapted to empty the same.

5. A concrete-mixing machine, consisting in combination with a mixing-receptacle, having circular outer and conical inner walls, of a vertical shaft, passing through the center of said receptacle, a pair of curved mixing-blades facing said outer and inner walls within said receptacle and carried by said shaft, means for rotating said blades by said shaft, an outlet in said receptacle through which the concrete may be emptied, measuring-buckets journaled on said receptacle, for the cement, sand, &c., to be used for the concrete, and means for locking said buckets in normal position.

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

CARL OTIS.

Witnesses:

F. G. BRADDURY,
W. L. THAUWALD.