W. R. TUTTLE.

LOADER FOR CONCRETE BATCH MIXERS.

APPLICATION FILED OCT. 9, 1909.

994,802.

Patented June 13, 1911.

3 SHEETS—SHEET 1.

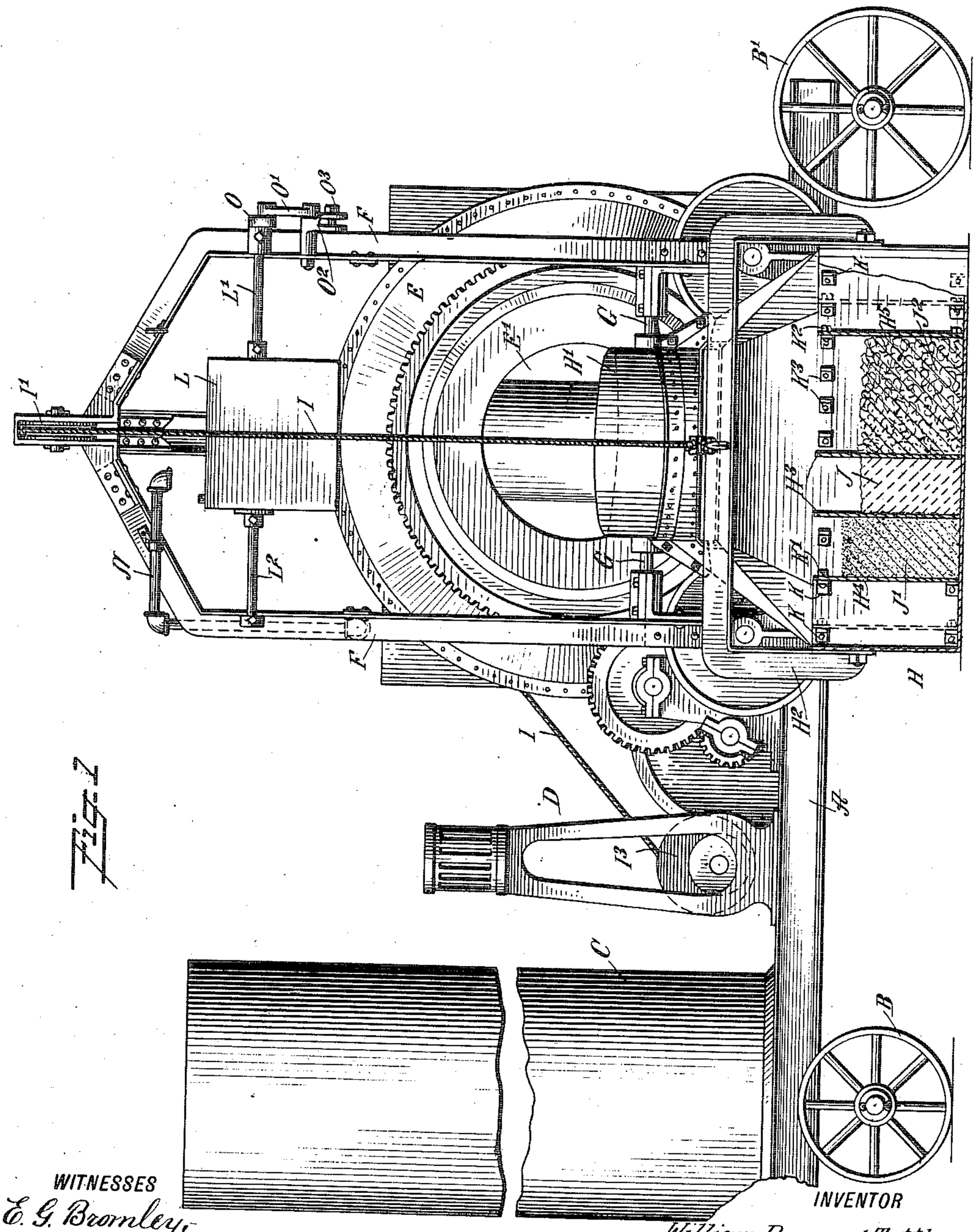

Fig. 1.

WITNESSES

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3 SHEETS—SHEET 2.

Fig. 2.

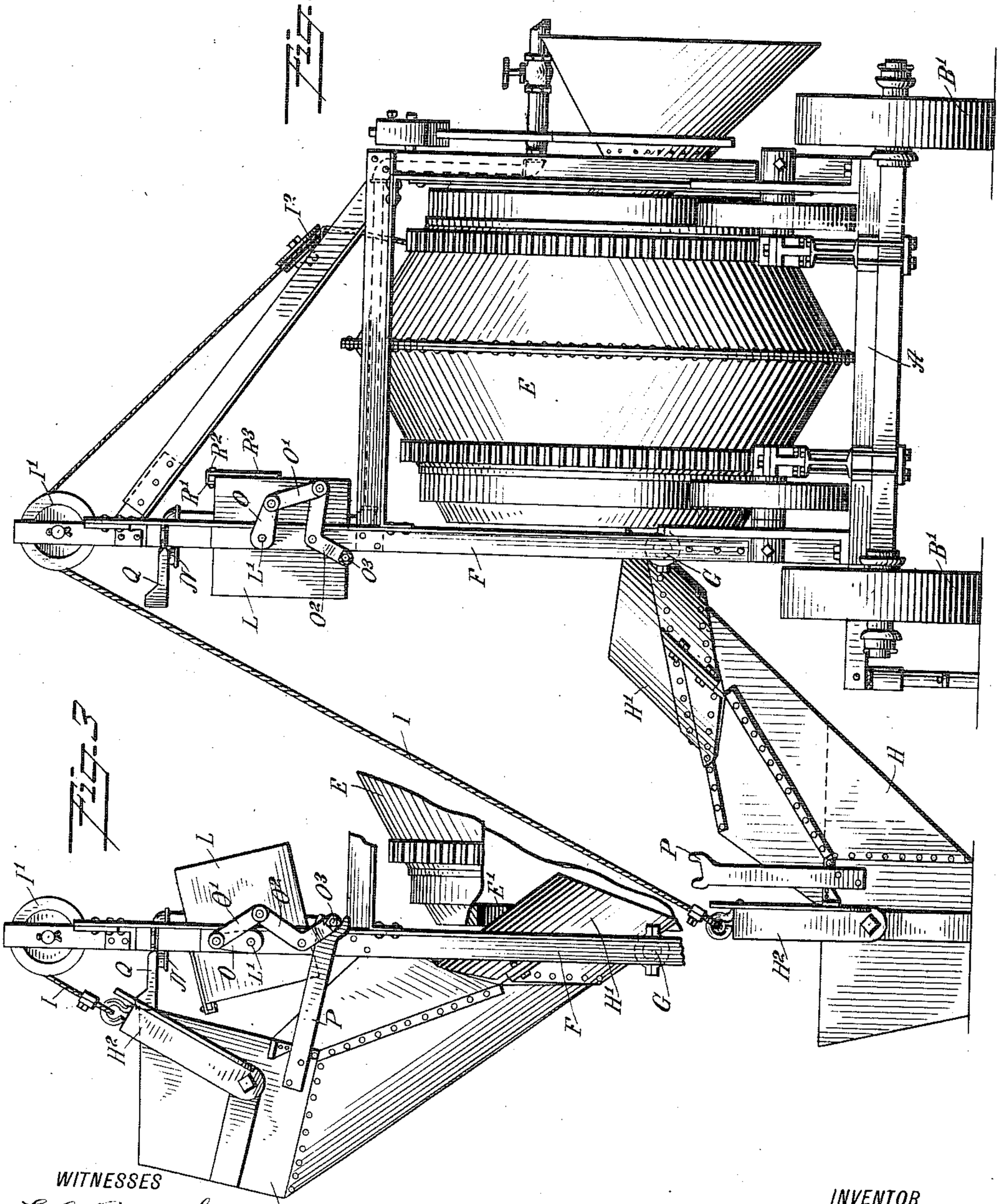

Fig. 3.

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3 SHEETS—SHEET 3.

Fig. 4

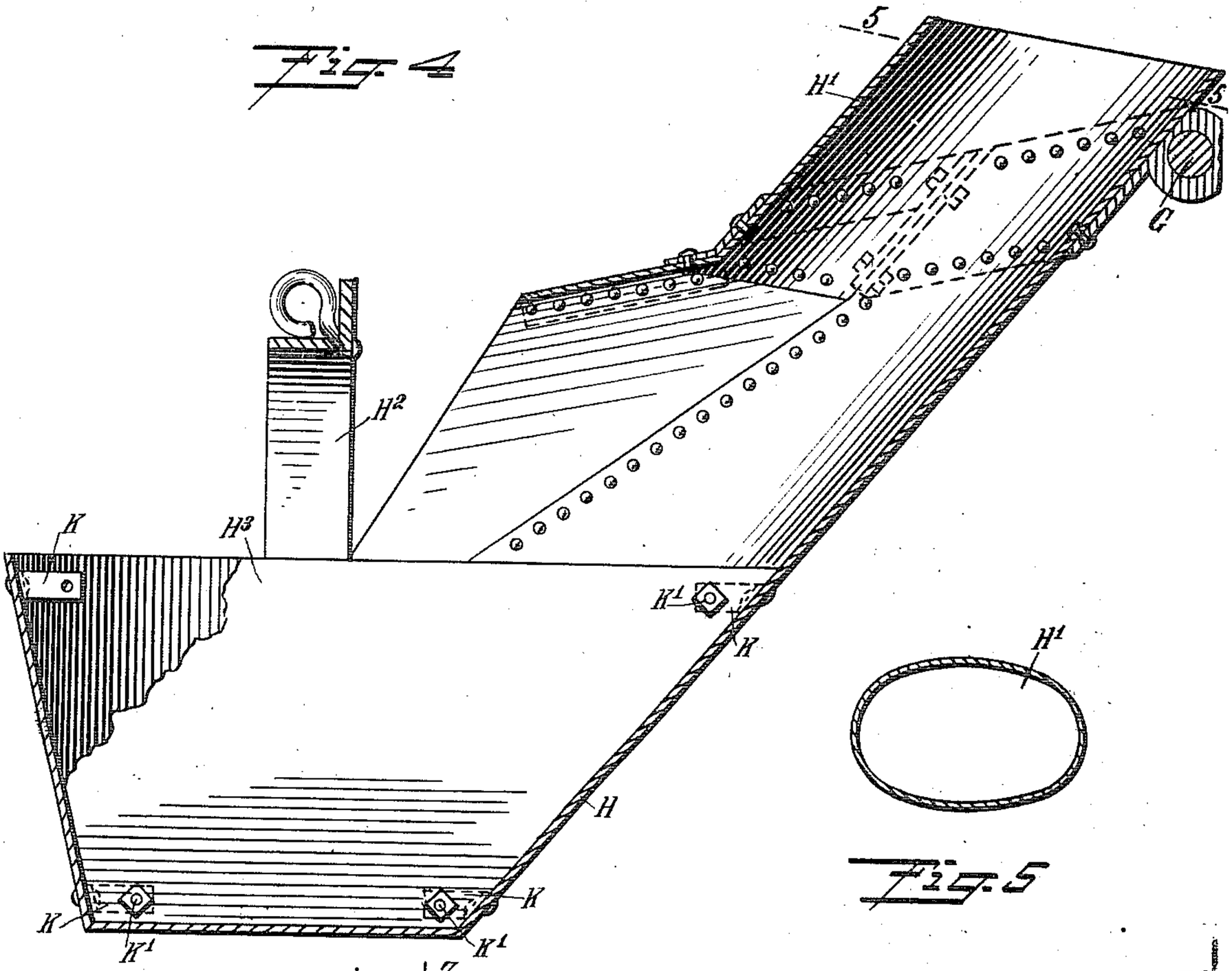


Fig. 5

Fig. 6

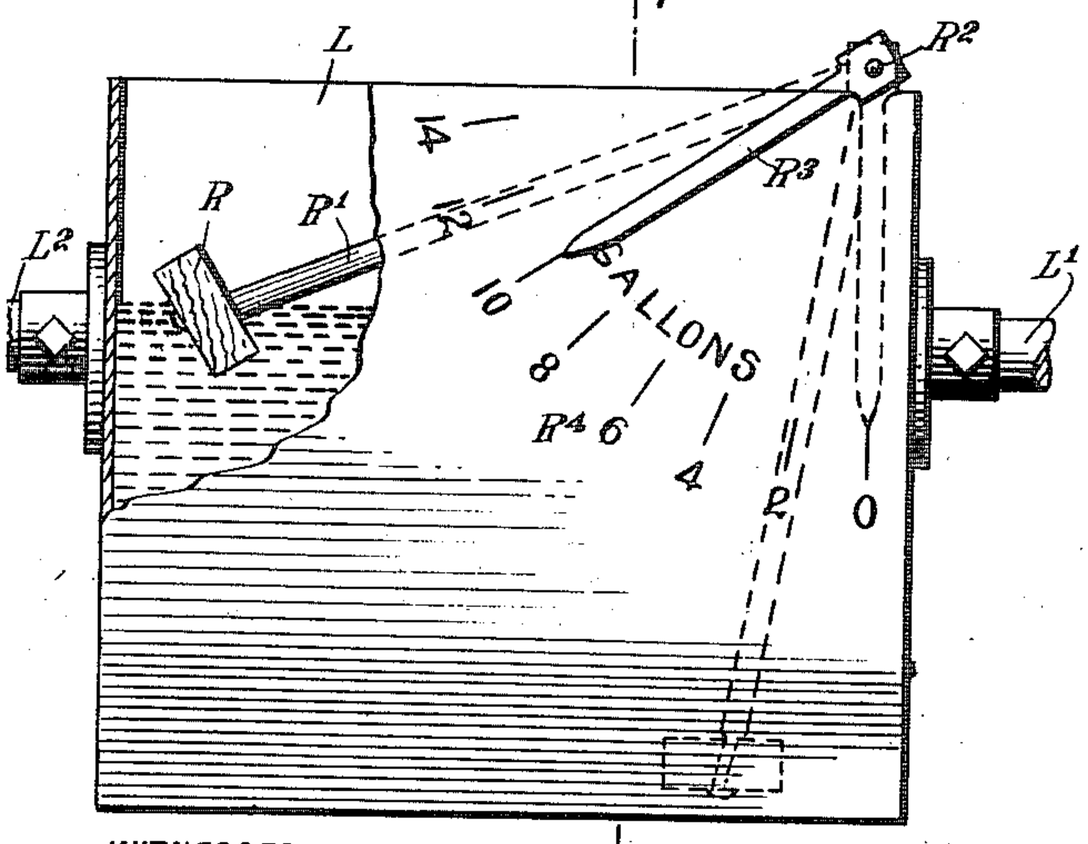
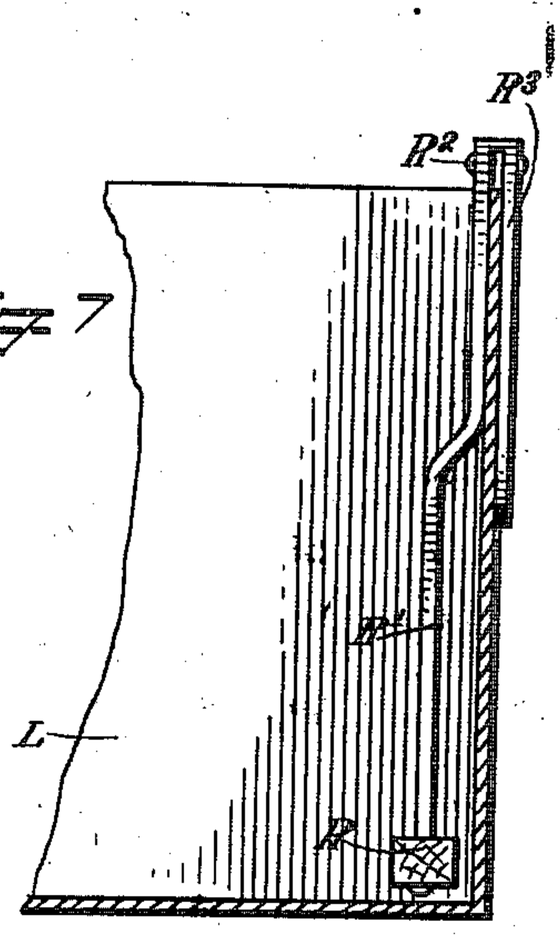


Fig. 7



WITNESSES

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WILLIAM RAYMOND TUTTLE, OF MEADVILLE, PENNSYLVANIA.

LOADER FOR CONCRETE-BATCH MIXERS.

994,802. Specification of Letters Patent. Patented June 13, 1911.

Application filed October 9, 1909. Serial No. 521,906.

To all whom it may concern:

Be it known that I, WILLIAM RAYMOND TUTTLE, a citizen of the United States, and a resident of Meadville, in the county of Crawford and State of Pennsylvania, have invented a new and Improved Loader for Concrete-Batch Mixers, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved loader for concrete mixers, arranged to permit accurate measuring of the quantities of materials at the time they are filled into the loader, to allow convenient charging of the loader and delivering the materials to the drum of the concrete mixer, at the same time supplying the water in a measured quantity, thus insuring the formation of batches of concrete of uniform consistency. For the purpose mentioned, use is made of a box adapted to receive the concrete materials, and this box is adapted to be swung into a discharging position so that the concrete materials are directly delivered into the mixing drum of a concrete mixing machine.

A practical embodiment of the invention is represented in the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a front elevation of a concrete mixer, provided with the loader, parts being in section; Fig. 2 is a rear end elevation of the same; Fig. 3 is a view showing the loader raised into discharge position; Fig. 4 is an enlarged sectional side elevation of the loader; Fig. 5 is a sectional plan view of the mouth of the loader, the section being on the line 5—5 of Fig. 4; Fig. 6 is an enlarged rear elevation of the water tank, part being broken out; and Fig. 7 is a cross section of the same on the line 7—7 of Fig. 6.

The bed or frame A of a concrete mixing machine is mounted on the front and rear wheels B, B′, and supports a boiler C and an engine D geared in the usual manner to the mixing drum E, mounted to rotate on the bed A and driven from the engine D in the usual manner, to properly mix the concrete materials. In order to load the concrete materials into the drum E through the opening E′ thereof, use is made of a loader, which forms a permanent part of the concrete mixing machine, and which is arranged as follows: On the bed A is erected a supporting frame F on opposite sides of the opening E′, as plainly indicated in Figs. 1 and 2, and on the frame F are journaled trunnions or pivots G attached to the opposite sides of the spout H′ of a measuring box H adapted to rest on the ground at one side of the mixing machine, as plainly indicated in Fig. 2. The box H is adapted to be swung upward into a discharging position, as indicated in Fig. 3, so that the contents of the box H pass down into the chute H′, which latter extends now through the opening E′ into the interior of the mixing drum E, to dump the concrete materials into the same. On the box H is pivoted a bail H^2, connected with one end of a rope or cable I, extending over sheaves I′, I^2 mounted on the frame F, to a drum I^3, driven by the engine D, so as to wind up and unwind the rope or cable I, with a view to swing the box H and its chute H′ upward into dumping position, as shown in Fig. 3, or back to a normal or filling position, as indicated in Figs. 1 and 2. The box H is provided with transversely-extending permanent partitions H^3 (see Fig. 1), forming a compartment between them for receiving cement J, and between the left partition H^3 and the left side of the box H is arranged another transverse partition H^4 for forming a compartment between the partitions H^4 and H^3, for the reception of sand J′. The partition H^4 is adjustable, for increasing or decreasing the size of the compartment for receiving the sand J′, and for this purpose the partition H^4 is adapted to be fastened by bolts K′ to angular lugs K attached to the front and rear of the box H, as will be readily understood by reference to Figs. 1 and 4. Between the right partition H^3 and the right side of the box H is arranged a transverse partition H^5 for forming a compartment between this partition H^5 and the right-hand partition H^3, for the reception of broken stone. The partition H^5 is also adjustable similar to the partition H^4, to increase or decrease the size of the compartment for receiving the broken stone. For the purpose mentioned, the partition H^5 is secured by bolts K^2 to sets of angular lugs K^3 attached to the front and rear of the box H. The sets of lugs K are so arranged that the compartment for the sand J′ is such that it contains one, two, three or four cubic feet of sand, and the sets of lugs K^3 are arranged in such a manner that the compartment for containing the broken stone J^2

is of a size corresponding to from three, four, five, six or seven cubic feet. For the full capacity the partitions H^4 and H^5 are removed, so that the compartment for the sand corresponds to four cubic feet while the compartment for the broken stone corresponds to seven cubic feet. Although I prefer the dimensions above given, it is evident that the same may be varied to suit existing conditions. In practice, however, it has been found advisable to use cement, sand and stone in the proportions of not more than one, four and seven parts, but these proportions are varied according to the nature of the materials or the work to be done. Now when the box H is in normal position, that is, resting on the ground as indicated in Figs. 1 and 2, it is evident that the workmen can readily shovel the cement, sand and broken stone into the corresponding compartments, and as the compartments are of predetermined size it is evident that each batch of concrete is formed of the same quantity of materials. When the loaded box H is swung upward, the materials slide out of the compartments through the chute H′ into the mixing drum E, to be thoroughly mixed therein with water, which is also supplied in a measured quantity at the time the materials are dumped into the drum.

The water supply is arranged as follows: In the upper portion of the frame-work F is located an overhead water tank L, adapted to receive its water supply through a pipe N connected with a suitable water supply. The tank L′ is hung on trunnions L′, L^2, journaled in suitable bearings arranged on the frame-work F, and on the trunnion L′ is secured an arm O pivotally connected by a link O′ with a bell crank lever O^2 fulcrumed on the frame-work F. A bolt or pin O^3 is held on the free end of the bell crank lever O^2 and is adapted to be engaged by a forked arm P secured on one side of the box H, so that when the latter swings upward into dumping position the arm P engages the pin O^3 and imparts a swinging motion to the bell crank lever O^2 which by the link O′ and the arm O tilts the water tank L forward into discharge position, as indicated in Fig. 3, so that the water contained in this tank L passes into the box H and flows down the same with the concrete materials to finally pass to the chute H′ and to the inside of the drum E. A stop Q is arranged on the upper portion of the frame F, to limit the upward swinging movement of the box H, as will be readily understood by reference to Fig. 3. The pipe N for supplying water to the tank L is provided with a suitable valve under the control of the operator in charge of the machine, to fill the tank L with a desired amount of water. Now in order to measure the amount of water passed into the tank L, use is made of a float R (see Figs. 6 and 7), adapted to rise and fall with the level of the water in the tank L. The float R is attached to an arm R′ held on a pivot R^2, journaled on the top of the tank L and carrying a pointer R^3 indicating on a graduation R^4 arranged on the rear of the tank L, as indicated in Fig. 6. This graduation R^4 indicates gallons of water contained in the tank, it being understood that when the float R rises the pointer R^3 is moved to correspond to the amount of water passed into the tank, so that the operator in charge can readily see when the desired amount of water has passed into the tank L through the pipe N.

The chute H′ is preferably made oval, as shown in Fig. 5, and the pivots or trunnions G are so located that when the box H is swung into dumping position then the spout H′ properly extends through the opening E′ of the mixing drum E, to prevent spilling of the materials and the water passing through the chute H′ into the mixing drum E.

From the foregoing it will be seen that by the use of the loader, the materials are measured for each batch of concrete, so as to insure the formation of batches of concrete of uniform consistency. It will also be noticed that as the materials are shoveled into their respective compartments in the box H, no extra handling of the materials is required to measure the same, and consequently extra platforms, runways, wheelbarrows and the like are entirely dispensed with. As the water is also measured to correspond to the amount of concrete materials, the formation of uniform batches of concrete are insured. As the box H tilts the overhead water tank L, it is evident that the water always passes into the mixing drum E, with the concrete materials to be mixed, and the tank L can be filled with water during the time the concrete materials are filled into their respective compartments in the box H.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

1. A loader for concrete mixing machines, comprising a box for the reception of the concrete materials, a tilting water tank, means for imparting movement to the said box to move the latter into dumping position, and means controlled by the movement of the box for turning said tank to cause discharge of the water into the said box while the latter is in dumping position.

2. A loader for filling the drum of a mixing machine with concrete materials and water, comprising a box having a discharge spout, an overhead water tank adapted to discharge into the said box, means for moving the said box into dumping position and with the said spout projecting into the drum opening, and means for controlling the said

overhead tank from the said box to cause the discharge of water from the tank into the box when the latter moves to dumping position.

3. A loader for filling concrete materials into the drum of a concrete mixing machine, comprising a box having measuring compartments for separately receiving the concrete materials, a spout extending from the said box and into which discharge the said compartments, means for moving the box into dumping position for the concrete materials to pass from their compartments into the spout and from the latter into the mixing drum, and an overhead water tank controlled by the said box to discharge the water from the tank into the said box at the time the latter is in dumping position.

4. A loader for filling concrete materials into the drum of a concrete mixing machine, comprising a box having measuring compartments and a spout into which discharge the said compartments, a pivot on the said spout for the box to swing on, the said pivot being adjacent to the charging opening of the drum, a hoisting device connected with the said box for swinging the latter up into dumping position and back into normal or loading position, an overhead tilting water tank, mechanism connected with the said tank for turning the same, and means on the said box for engagement with the said mechanism to turn the tank for the latter to discharge into the box at the time the latter is in discharge position.

5. A loader for filling concrete materials into the drum of a mixing machine, provided with a box having a spout for engagement with the drum opening to dump the concrete materials into the drum on tilting the box, partitions adjustably held in the said box for forming measuring compartments for separately receiving the concrete materials, a water tank adapted to discharge a measured quantity of water into the said box, and means actuated by the tilting of the box for causing the discharge of water from the tank.

6. A loader for filling concrete materials into the drum of a mixing machine provided with a box having a spout for engagement with the drum opening to dump the concrete materials into the drum on tilting the box, partitions adjustably held in the said box for forming measuring compartments for separately receiving the concrete materials, a water tank adapted to discharge a measured quantity of water into the said box, means for indicating the amount of water in the tank, and means controlled by the tilting of the box for tilting the water tank so as to discharge the contents thereof.

7. A loader for concrete mixing machines comprising a box for the reception of the concrete materials, a tilting water tank adapted to discharge a measured quantity of water into the said box, means for indicating the amount of water in the tank, and means for moving the box into dumping position, the said water tank being controlled by the movement of said box.

8. A loader for filling concrete materials into the drum of a concrete mixing machine comprising a box for the reception of the concrete materials, means for swinging the box upward into dumping position, a tilting water tank adapted when tilted to discharge into the said box, mechanism connected with the tank for tilting the same, means for limiting the upward swinging movement of the box, and a member carried by the box and adapted to engage said mechanism when the box is swung upward to tilt the tank.

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

WILLIAM RAYMOND TUTTLE.

Witnesses:
H. N. GRINAGER,
R. E. STEVENS.