V. M. PRICE.

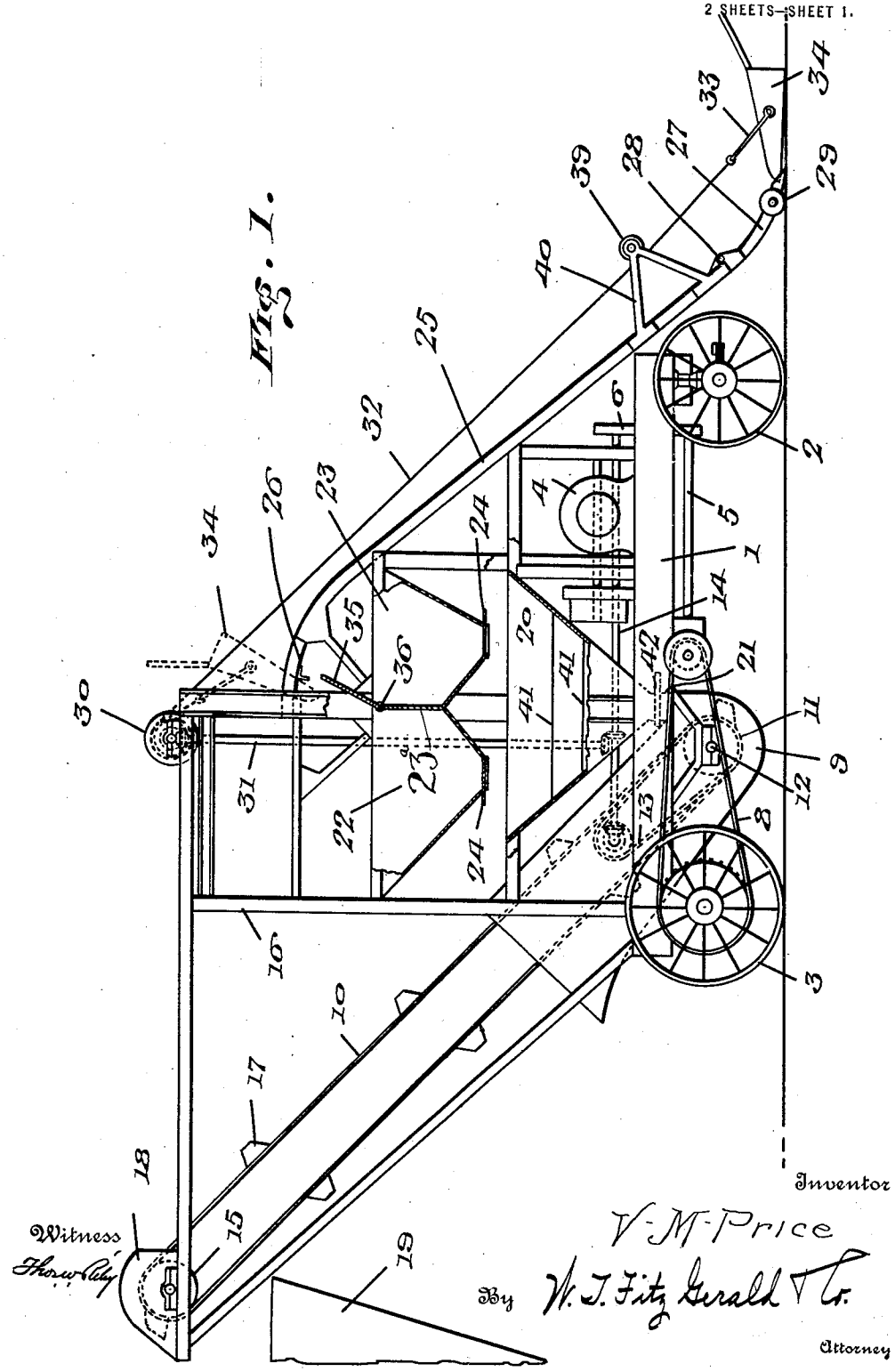
CONCRETE MIXER LOADER.

APPLICATION FILED JUNE 12, 1919.

1,340,345. **Patented May 18, 1920.**

2 SHEETS—SHEET 1.

Fig. 1.



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2 SHEETS—SHEET 2.

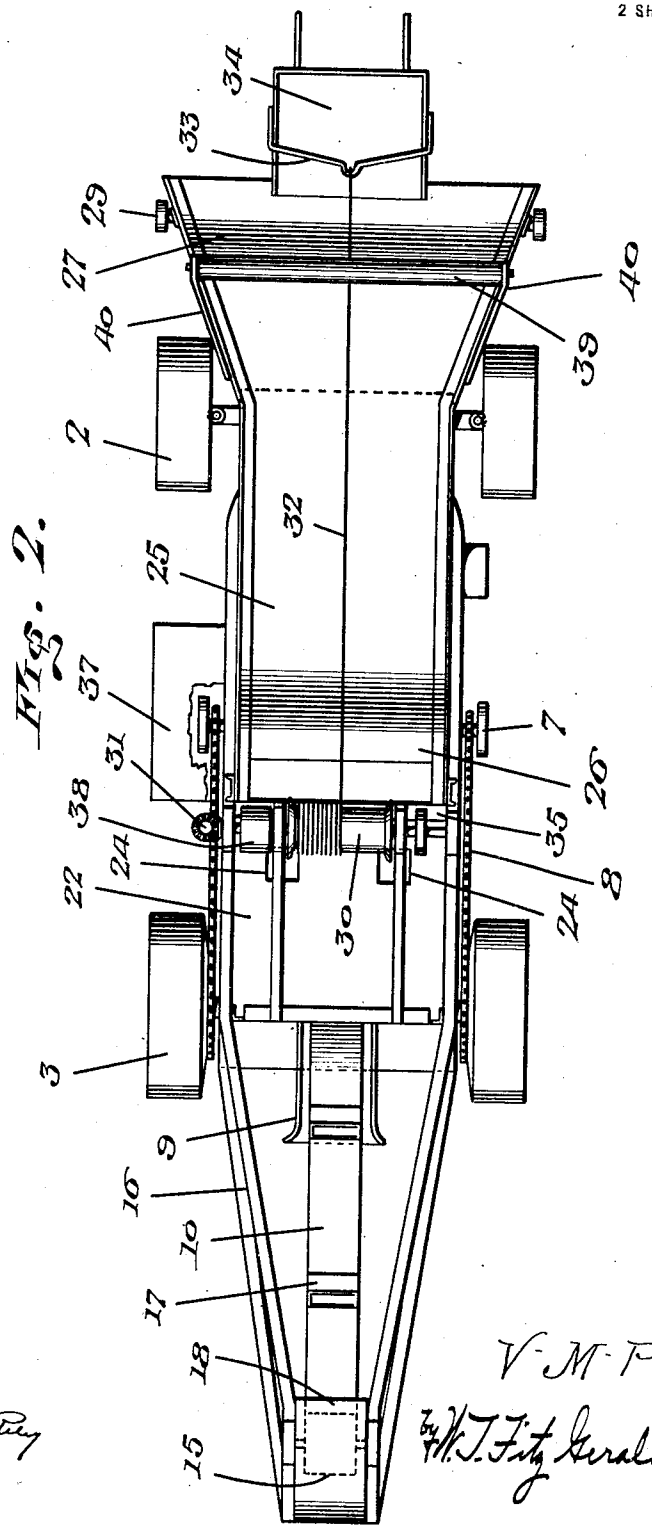

Fig. 2.

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UNITED STATES PATENT OFFICE.

VIRGIL MACNEIL PRICE, OF ALAMEDA, CALIFORNIA.

CONCRETE-MIXER LOADER.

1,340,345. Specification of Letters Patent. Patented May 18, 1920.

Application filed June 12, 1919. Serial No. 303,548.

To all whom it may concern:

Be it known that I, VIRGIL M. PRICE, a citizen of the United States, residing at Alameda, in the county of Alameda and State of California, have invented certain new and useful Improvements in Concrete-Mixer Loaders; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The present invention relates to a machine intended especially for facilitating the loading of concrete mixers with sand, cement and rock or gravel, and aims to provide such a machine having a novel arrangement of hoppers or bins for receiving the materials, such as cement, sand, rock and gravel, for the mixture of a charge thereof in suitable proportions, means for conveying and elevating the sand, crushed rock and sand to discharge same into the respective hoppers or bins, and means for elevating the charge or mixture to deliver same into the hopper of a concrete mixer, thereby saving labor and time.

A further object is the provision of such a loading machine having novel and improved features of construction to enhance the utility and efficiency thereof, and to also increase the output of the concrete mixer inasmuch as one charge or batch of material can be prepared while the previous charge or batch is being mixed in the mixer, thus providing for a practically constant operation of the mixer.

With the foregoing and other objects in view, which will be apparent as the description proceeds, the invention resides in the construction and arrangement of parts hereinafter described and claimed, it being understood that changes can be made within the scope of what is claimed without departing from the spirit of the invention.

The invention is illustrated in the accompanying drawings, wherein—

Figure 1 is a side elevation of the concrete mixer loader, portions being broken away and shown in section.

Fig. 2 is a plan view of the machine, portions being broken away.

In carrying out the invention, there is provided a suitable vehicle frame 1 mounted on the front wheels 2 and rear propelling wheels 3, and carrying a suitable internal combustion engine 4. The vehicle or truck is preferably self propelled by the engine, the wheels 2 forming a part of a suitable steering gear, and a longitudinal drive shaft 5 being connected to the engine, as at 6, and operating a jack shaft 7 which is connected by sprocket chains 8 to the rear wheels 3, a suitable clutch and other controlling means being provided according to standard practice.

Mounted within the rear portion of the frame 1 is an inclined trough 9 in which the forward lower portion of an inclined endless elevator belt 10 works, said lower portion of the belt passing around a pulley wheel 11 within the lower portion of the trough mounted on a transverse shaft 12 which is connected by a sprocket chain and gearing, as at 13, to a longitudinal shaft 14 driven from the engine 4. The upper rear portion of the belt 10 passes over a pulley wheel 15 supported by the rear overhanging portion of the frame work for superstructure 16 carried by the frame 1, and the belt 10 has the buckets 17 to carry the material upwardly from the trough 9 and deliver same into the hopper 19 of any suitable concrete mixer. A hood 18 is mounted on the frame work 16 over the pulley wheel 15 to prevent the material from being thrown from the buckets beyond the hopper 19 when said buckets pass around the pulley wheel.

A main hopper or bin 20 is carried by the frame above the lower end of the trough 9, which is provided with an upwardly extending neck 21 connected to the spout of the hopper 20, whereby the material dumped into said hopper will pass down into the lower portion of the trough 9 in which the buckets 17 of the elevator work to lift or dip the material from the trough.

A pair of companion hoppers or bins 22 and 23 is supported by the frame work 16 above the main hopper 20, and have a common wall or partition 23^a between them, and the lower discharge openings of said hoppers or bins 22 and 23 are provided with slide valves 24 to control the flow of material from the hoppers 22 and 23 into the hopper 20 underneath. The hopper 22 is intended to receive and hold crushed rock or gravel, while the hopper 23 is provided for holding sand, and said hoppers 22 and 23 are disposed longitudinally one in front of the other with their common wall or partition 23^a disposed transversely of the frame.

In order to conveniently deliver crushed

rock, gravel and sand into the bins 22 and 23, an inclined runway or incline 25 is carried by the forward portion of the frame 1 and frame work 16, and its upper end curves over and overhangs the forward hopper 23, as at 26, with the upper end of said runway or incline terminating substantially above the partition between the two hoppers 22 and 23. The lower portion of the incline is widened, and has a loose section 27 pivoted, as at 28, to the lower end of the incline and curved from the incline toward the horizontal away from the machine, and the portion 27 is provided with wheels or rollers 29 at opposite sides to rest on the ground and thus support the lower edge of the portion 27 in proper relation to the ground. The portion 27 can swing upwardly and downwardly according to the unevenness of the ground.

Mounted on the upper portion of the frame work 16 above the upper end of the incline 25 is a transverse drum 30, connected with the shaft 14 by a vertical shaft 31 at one side of the frame, and a cable 32 is connected to said drum to be wound thereon and unwound therefrom. The free end of this cable 32 is connected to the bail 33 of a scoop 34, and a manually operable clutch 38 is provided between the drum 30 and engine 4, to be controlled by the operator standing on the platform 37 at the corresponding side of the frame. Thus, the drum 30 can be connected to and disconnected from the engine at will, for enabling the workman to pull the scoop 34 away from the machine to a point behind a pile of sand, gravel or crushed rock, and then cause the cable to be wound on the drum for pulling the scoop to the incline and up the same.

A chute or wing 35 is hinged, as at 36, on the upper edge of the partition or wall 23^a between the hoppers 22 and 23, and is swingable forwardly and rearwardly to control the flow of material from the scoop when it discharges at the upper end of the incline, into the bins 22 and 23. When the chute 35 is swung forwardly, the scoop 34 in dumping at the upper end of the incline will deliver the material into the hopper or bin 22, the chute 35 deflecting the material into said hopper, whereas when the chute 35 is swung rearwardly it will deflect the material into the hopper 23. For this reason, the chute 35 is located below the point where the scoop discharges, and is swingable either in front or in rear of the path of the material which drops or discharges from the scoop. The swinging movement of the chute or wing 25 is limited by the hinge 36, or by suitable stops or members of the frame.

A transverse roller 39 is preferably provided over the lower end of the incline 25, being carried by braces 40 secured to and extending upwardly from the sides of the incline, and the cable 32 passes under the roller 39, whereby to facilitate the pulling of the scoop to the lower end of the incline and up over the entrance portion 27 to pass up the incline.

In operation, the workmen pull the scoop 34 away from the incline behind a pile of rock or gravel, and the drum 30 is then connected with the engine through the medium of the clutch 38, thereby winding the cable 32 on the drum and pulling the scoop toward the machine, so that it will scoop up some of the crushed rock or gravel in being pulled to the incline. In reaching the incline, the scoop is pulled up the same, and when it reaches the upper end of the incline, it will discharge over the same, as illustrated in dotted lines in Fig. 1, the clutch 38 being opened, and the chute 39 deflects the crushed rock or gravel thus discharged into the hopper or bin 22, after which the scoop is slid back down the incline and the operation repeated, until the hopper 22 is filled. The chute 35 is then swung rearwardly, and the operation is repeated for filling the hopper 23 with sand, the scoop 34 in this case being pulled back behind a pile of sand and then drawn by the cable 32 over said pile to carry sand for delivery into the hopper 23. In this manner, the hoppers 22 and 23 are conveniently filled with gravel, crushed rock and sand, and this filling operation can be continued without interruption.

An operator positioned on the platform 37 mixes the batch or charge, by opening the valves or gates 24 so that the required amounts of sand and rock or gravel fall into the batch or charge measuring hopper 20. For example, the interior of the hopper 20 can have marks 41, and sand can first be delivered into the hopper 20 up the first mark 41, after which the same is cut off, and the rock or gravel delivered into the bin 20 up to the second mark 41, after which the flow of rock or gravel is cut off, and the proper number of sacks of cement are dumped into the hopper 20 completing the batch or charge. A valve or gate 42 (similar to valves 24) below the spout or discharge opening of the hopper 20, which is normally closed, is then opened to permit the batch or charge to flow into the trough 9 from which the elevator elevates the batch and delivers it into the hopper 19 of the concrete mixer. In this way, the sand and gravel and rock can be continually delivered into the hoppers 22 and 23 as the primary operation of the machine, and the batches can be intermittently formed in the hopper 20 above which the sand and crushed rock or gravel are held in storage, so that as soon as one batch is discharged from the hopper 20 to the elevator and into the hopper or concrete mixer, the next batch or

charge can be measured in the hopper 20, thus providing for a continuous operation. In this way, during the delivery of one batch or discharge into the concrete mixer, the next charge or batch is being prepared, so that as soon as the batch is delivered from the concrete mixer, the next batch to be mixed is ready for delivery to the mixer. This provides for a saving in time and labor, by providing a practically continuous operation, which will increase the output of the concrete mixer. It is preferable to use a hopper 19 with the concrete mixer sufficiently large to hold a batch or charge of material, and to have it provided with a valve or gate, whereby as soon as the mixer is empty, the valve or gate can be opened to let the batch flow into the mixer, thereby enabling the hopper 19 to be filled with the next batch during the mixing of one batch. This, however, possesses nothing especially novel, but it will of course facilitate the operation of the machine.

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

1. A loader for a mixing machine embodying holding hoppers for different materials having a partition between them, an incline having its upper end overhanging said partition, a scoop to move up said incline and discharge over the upper end thereof above said partition, means for pulling the scoop from a distance to and up the incline, a chute hinged to said partition and swingable to either side to deflect the respective materials from the chute into the proper hoppers, said hoppers having independent manually-operable discharge valves, and means for receiving the materials from the hoppers when said valves are opened and graduated to indicate the amounts of materials received, and for delivering same to a mixing machine after the graduated quantities of materials are received.

2. A loader for mixing machines, embodying a measuring hopper having a controlling discharge valve, a trough underneath said hopper to receive the material therefrom, an elevator working within said trough for elevating the material therefrom to deliver it to a mixing machine, holding hoppers above the measuring hopper and having controlling discharge valves to establish and cut off the flow of material into the measuring hopper, means for elevating material to discharge over the holding hoppers, and means for delivering the material from the last named means into either of the holding hoppers.

3. A loader for a mixing machine embodying a measuring hopper having a controlling discharge valve, a trough underneath said hopper to receive the material therefrom, an elevator working in said trough for elevating the material therefrom to deliver it to a mixing machine, a pair of holding hoppers above the measuring hopper and having a partition between them and controlling discharge valves to establish and cut off the flow of material into the measuring hopper, means for elevating material to discharge it over said partition, and a chute hinged on said partition and swingable to either side to deflect the material into one holding hopper or the other.

4. A loader for a mixing machine embodying a measuring hopper having a controlling discharge valve, a trough under said hopper to receive the material therefrom, an elevator working in said trough for elevating the material therefrom to deliver it to a mixing machine, holding hoppers above the measuring hoppers having controlling discharge valves to establish and cut off the flow of material into the measuring hoppers, an incline extending to a point over the holding hoppers, a scoop, means for pulling the scoop to and up the incline to discharge over the upper end thereof, and means for directing the material from said scoop into either of the holding hoppers.

5. A loader for mixing machines embodying a measuring hopper having a controlling discharge valve, a trough to receive the material from said hopper, an elevator working in said trough to elevate the material therefrom and deliver it to a mixing machine, a pair of holding hoppers above the measuring hopper and having a partition and controlling discharge valves for establishing and cutting off the flow into the measuring hopper, an incline having its upper end overhanging one holding hopper, a scoop to move up said incline and discharge over the upper end thereof above said partition, means for pulling the scoop up the incline, and a chute hinged to said partition and swingable below the upper end of the incline to deflect the material from the scoop to either of the holding hoppers.

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

VIRGIL MACNEIL PRICE.

Witnesses:
F. A. Berlin,
E. F. Steere.