

E. B. SYMONS.  
POWER CHARGING DEVICE FOR CONCRETE MIXERS.  
APPLICATION FILED OCT. 17, 1908.

934,234.

Patented Sept. 14, 1909.

2 SHEETS—SHEET 1.

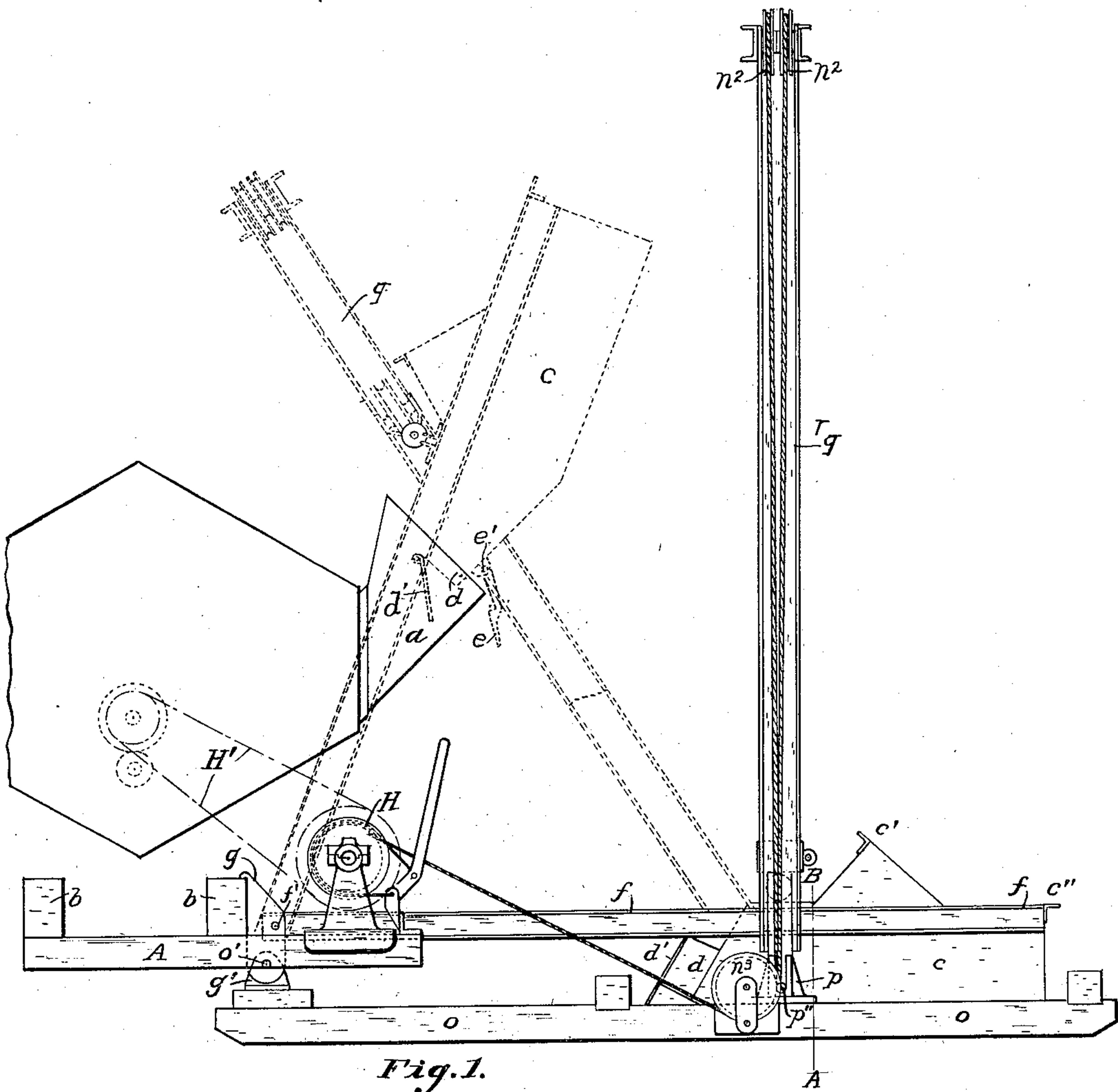


Fig. 1.

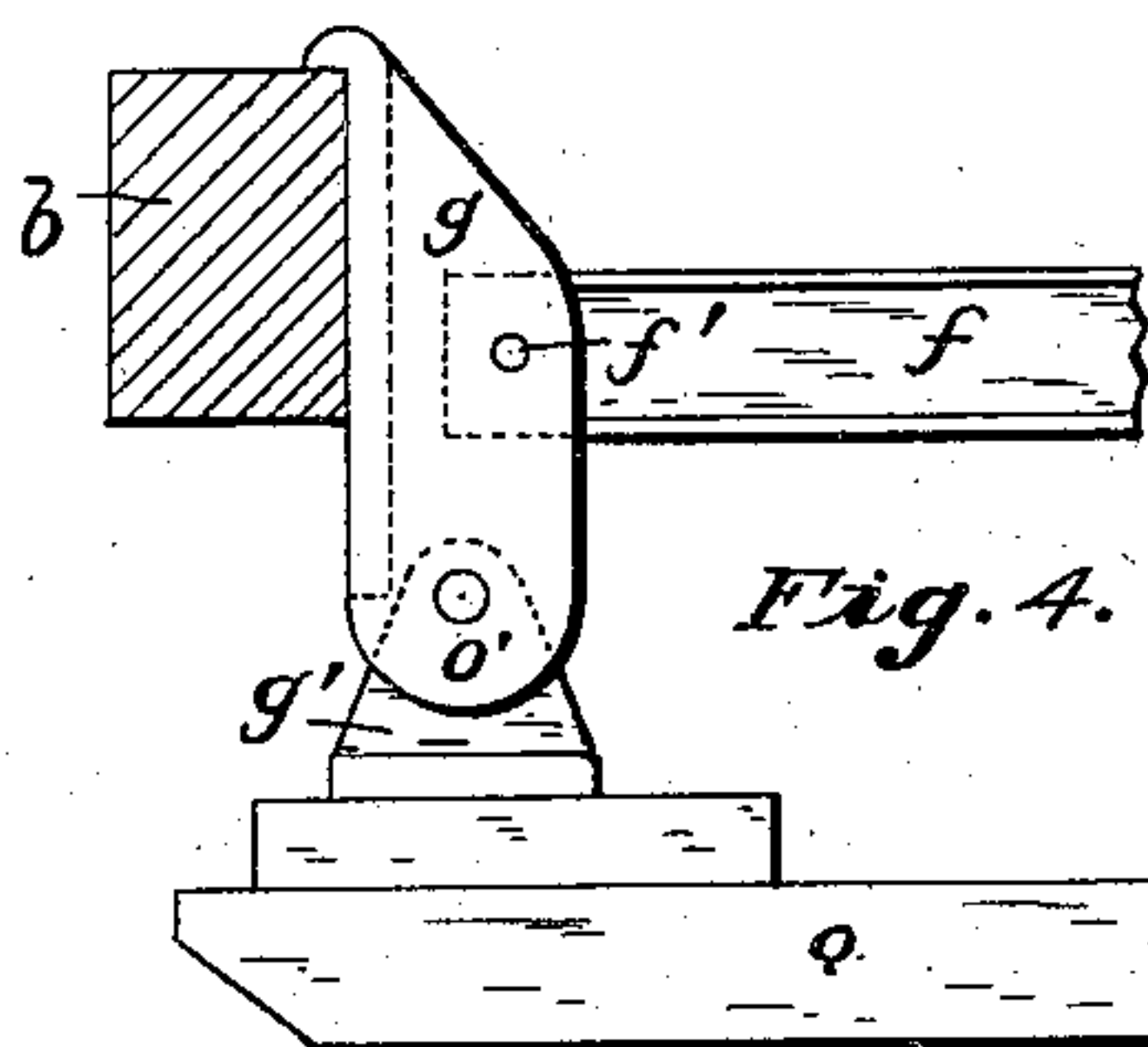


Fig. 4.

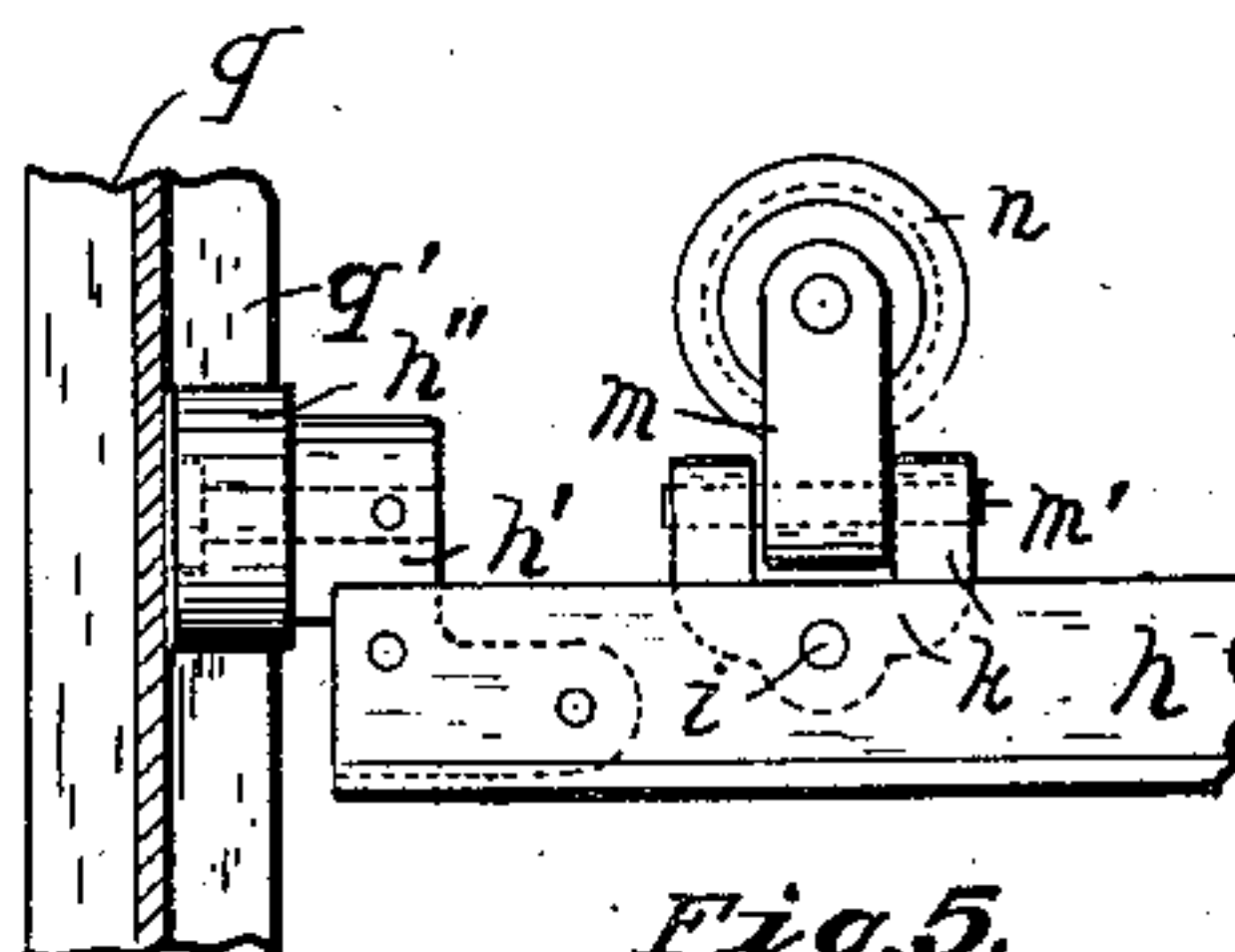


Fig. 5.

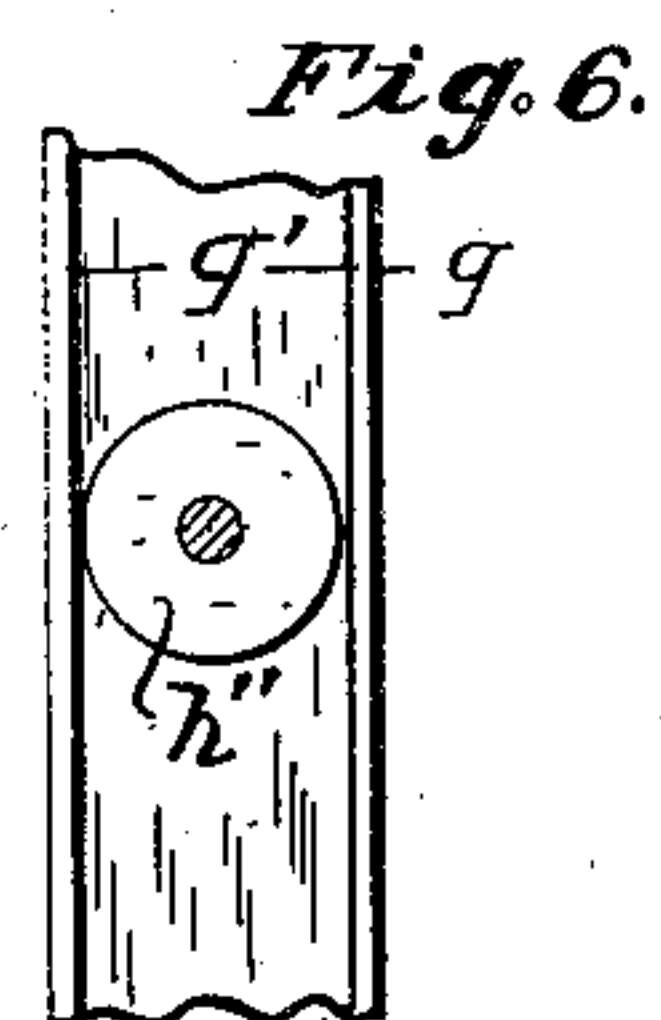


Fig. 6.

Witnesses  
E. B. Symons,  
A. B. Gerlach.

By

Inventor  
Edgar B. Symons,  
Albert E. Smith  
Attorney

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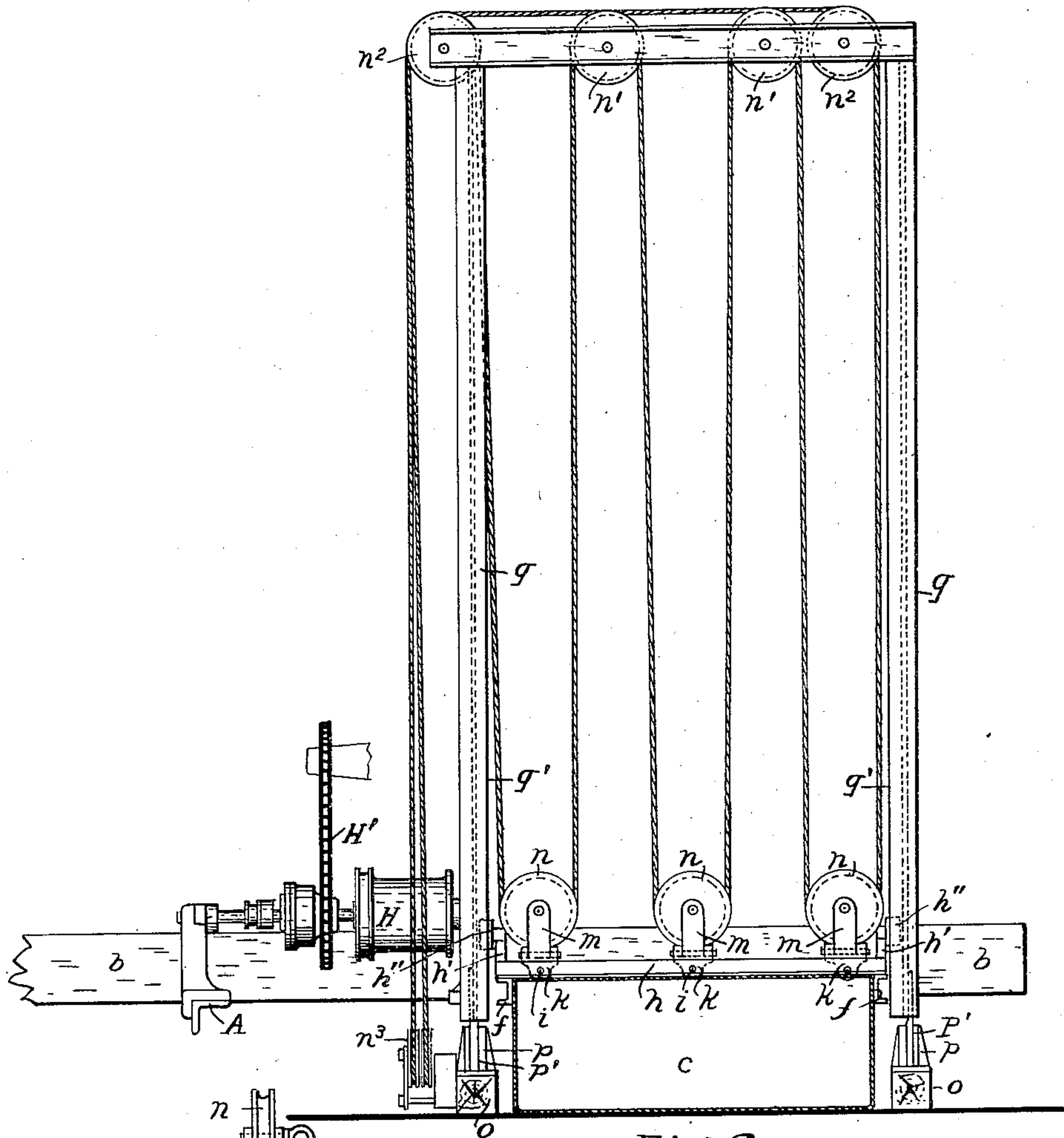


Fig. 2.

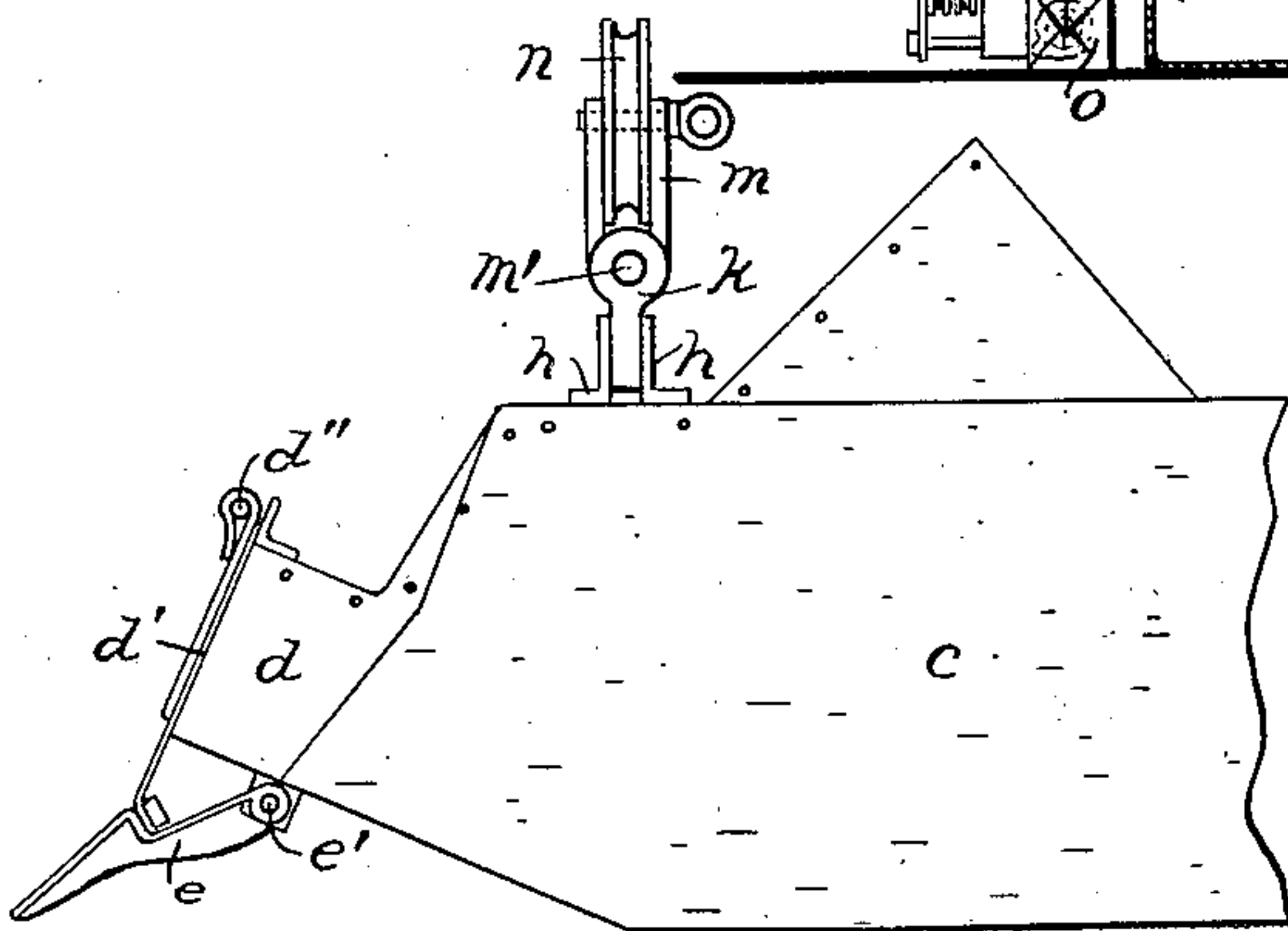


Fig. 3.

Witnesses  
 E. B. Symons  
 A. A. Gerlach

Inventor  
 E. B. Symons

By

Albert E. Smith

Attorney



# UNITED STATES PATENT OFFICE.

EDGAR B. SYMONS, OF MILWAUKEE, WISCONSIN, ASSIGNOR TO THE T. L. SMITH COMPANY, OF MILWAUKEE, WISCONSIN, A CORPORATION OF WISCONSIN.

POWER CHARGING DEVICE FOR CONCRETE-MIXERS.

934,234.

Specification of Letters Patent. Patented Sept. 14, 1909.

Application filed October 17, 1908. Serial No. 458,150.

*To all whom it may concern:*

Be it known that I, EDGAR B. SYMONS, a citizen of the United States, residing at Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented a new and useful Power Charging Device for Concrete-Mixers, of which the following is a description, reference being had to the accompanying drawings, which form part of this specification.

The object of my invention is to provide a durable, efficient and portable charging device for concrete mixers that is adapted to receive one complete batch of material to be mixed at the floor level while the preceding batch is being mixed in the mixer, and that will elevate the batch and discharge it into the mixer in one short operation. By this means the mixing action is practically continuous, and all the expense of platforms and wheelbarrow runways, and all the labor of elevating by hand the stone, sand, gravel and cement to the height of the feed spout, is obviated.

Another object is to obviate all unnecessary friction of ropes pulling at disadvantageous angles, by pivoting the over head frame so that the lead of the ropes is always fair.

Another object is to render the device readily detachable from the mixer and readily segregable into component parts, so that it may be as readily portable as possible.

I attain these objects by the mechanism illustrated in the accompanying drawings, in which,—

Figure 1 is a side elevation of the device, showing the loading bucket on the ground in position to receive the batch of material, and also showing, in dotted lines, the bucket in elevated position discharging into the mixer spout. Fig. 2 is an end view of the device looking from the right of Fig. 1, the bucket and frame being shown in section on the plane AB, Fig. 1. Fig. 3 shows a side view of the discharge end of the bucket the loading end being broken away. Fig. 4 shows a side view of the attachment of the

side loader to the mixer truck timbers. Figs. 5 and 6 show the means for guiding the bucket in the swinging frame.

Similar characters refer to similar parts throughout the several views of the drawings.

While the loading device may be used in connection with any batch mixer, the mixer herein shown is of the well known type illustrated and described in Patent No. 690,783 dated Jan. 7th, 1902, issued to T. L. Smith.

It will be sufficient description of the mixer to say that *a* is the feed spout into which the loading device discharges, and *bb* are the truck timbers on which the mixer is mounted.

The loader bucket *c* is constructed of sheet steel, and the part from *c'* to *c''* is open on top, so that barrow loads of sand, stone and gravel may be readily dumped in.

At *d* the bucket is provided with a spout or chute having a gate *d'* hinged to the top of the bucket at *d''* and a spring latch *e* hinged below the spout *d* at *e'*. The pivot pin at *e'* has a torsion spring on it, tending to hold the latch closed.

The bucket *c* has radius arms *f* riveted to its sides and pivoted to the mixer by means of the pivot pin *f'* and the cast bracket *g* bolted to the timber *b*. These pivot pins *f'* are secured in place by easily removable spring cotters, so that by removing these cotters and pulling out the pivot pins, the loader bucket is disconnected from the mixer.

The loader bucket has riveted transversely of its top surface, two angle irons *hh* spaced apart to receive between them the links *kkk*, said links being pivoted to the bars by pins *i*. Three straps or hangers *mmm* are pivoted to the links *k* by pins *m'*. Three sheaves *nnn* are hung in the strap *m* and by virtue of the double pivoting, these sheaves can aline themselves to a pull in any direction.

A frame having two main sills *oo*, is attached to the mixer by pivot pins *o'* connecting the two cast brackets *g* and *g'*. The frame *oo* lies on the ground positioned by its



connection with the mixer. Opposite the sheaves on the loading bucket, two cast brackets *pp* are bolted to the sills *oo* and a swinging gallows frame *qq* is pivoted in slots *p'* in *p*. The slots *p'* are provided so that the frame *qq* may be disconnected from the ground frame by merely lifting the frame with its pivot pins *p''* until they are clear of the slots *p'*.

The vertical members of the swinging frame *q* are made of channels so there is a flange on each side of the upright as at *q'* Figs. 5 and 6. At each end of the angle irons *hh* a bracket *h'* is riveted, each such bracket carrying a roller *h''* traveling in the upright channel between *q'q'*. As the car or bucket *c* is elevated, it pivots around its center *f'* and its rollers *h''* traveling in the channels swing the frame *q* around its pivots *p''*. When the bucket *c* starts its upward movement the pull on the lifting ropes is normal to the radius bars *f*, and when the bucket is at the top of its travel, the strain on the ropes is in a direction making an angle of about 30 degrees to the normal to the radius bars.

The hoisting drum *H* is driven from the mixer by a chain *H'*. This hoisting mechanism is supported on angles *aa* suspended from the timbers *bb*.

The lead of the rope is from the center sheave *n* over the upper sheaves *n'n'* under the two outer sheaves *nn* over the three upper sheaves *n²* under the two guide sheaves *n³*, and finally both ends are attached to the drum *H*. The guide sheaves *n³* are supported on the ground frame *O*. In this arrangement the center sheave *n* is only an equalizer, the hoisting being done by two tackles each consisting of a double upper sheave a single lower sheave and a four-part fall.

In operation, the material to be mixed is dumped into the loading bucket *c* as it lies on the ground, thus obviating the labor of elevating the material to the height of the feed spout *a*, and also dispensing with elevated platforms and runways. Furthermore, one batch is being mixed in the mixer while the bucket *c* is being loaded, and by this means the output of concrete is largely increased and the number of men employed in loading is decreased, as they can work constantly without waiting for the mixer to be discharged. When the clutch of the hoist is thrown in and the bucket starts on its upward journey, the pull of the ropes is normal to the radius bars *f* and in the direct line of gravity. As the upward journey continues, the directions of the pull of the ropes inclines increasingly from the normal to the radius bars and from the line of gravity, but the line of effort is always a fair pull on the radius bars and a fair pull

against gravity, relieving the strain on the pivot pins *f'*. When the loading bucket reaches the upward limit of its travel, the latch *e* strikes the edge of the feed spout *a*, releasing the gate *d'*, allowing the batch of material to slide into the mixer from the bucket *c*. As the bucket is lowered by force of gravity, the swinging frame *qq* gradually assumes the upright position again, and when the bucket strikes the floor, the gate *d'* snaps over the spring pressed latch *e*.

When it is necessary to move the mixer outfit, the upright frame *qq* is lifted until the pivots *p''* are clear of the brackets *p*. The lower ends of *qq* are then carried toward the left while the upper end with the sheaves *n²* is lowered to the right until the swing frame rests on the sill frame *oo* and bucket *c*. The pivot pins *o'* and *f'* are then withdrawn, which disconnects the sill frame *o* and bucket *c* from the mixer. The two rope ends are then disconnected from the drum *H* and the entire power loading device is then free to be moved independent of the mixer.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. A power charging device for concrete mixers, comprising a loading bucket supported on radius arms pivoted to the mixer frame, and power means operated from the mixer for elevating the bucket to the mixer spout.

2. A power charging device for concrete mixers, comprising radius arms pivoted at one end to the lower frame of the mixer and carrying a loading bucket rigidly attached to the other end, and hoisting means for tilting the arms upward until the loading bucket is over the mixer feed spout.

3. A power charging device for concrete mixers, comprising radius arms pivoted at one end to the mixer frame and having a loading bucket rigidly attached to the other ends, sheaves attached to the top of the bucket overhead sheaves on an upright frame, and a flexible connector connecting said sheaves and a hoisting drum.

4. A power charging device for concrete mixers, comprising radius arms pivoted at one end and carrying a loading bucket at the other, an upright frame pivoted at the lower end and carrying sheaves at the upper end, sheaves carried by the loading bucket, an engagement between the upright frame and radius bars, whereby as the latter swing upward, the former swings the normal to the radius bars.

5. A power charging device for concrete mixers, comprising radius arms pivoted to the mixer frame and having a loading bucket on the outer end, sheaves attached to the top of the bucket, a ground supported frame attached to the mixer, a hoisting frame pivoted on the ground frame and carrying



overhead sheaves, guide sheaves near the pivot of the hoisting frame and a continuous hoisting rope leading around the sheaves and having both ends connected to the hoisting drum.

5 6. A power charging device for concrete mixers, pivoted radius arms carrying a loading bucket having hoisting sheaves, a pivoted upright frame carrying hoisting sheaves  
10 at the top, said radius arms and upright

frame having a mutual engagement consisting of a projection on one and moving along the other as their relative positions change, hoisting means and ropes connecting said means and said sheaves.

EDGAR B. SYMONS.

Witnesses:

EDW. W. ZINN,

H. H. GERLACH.