

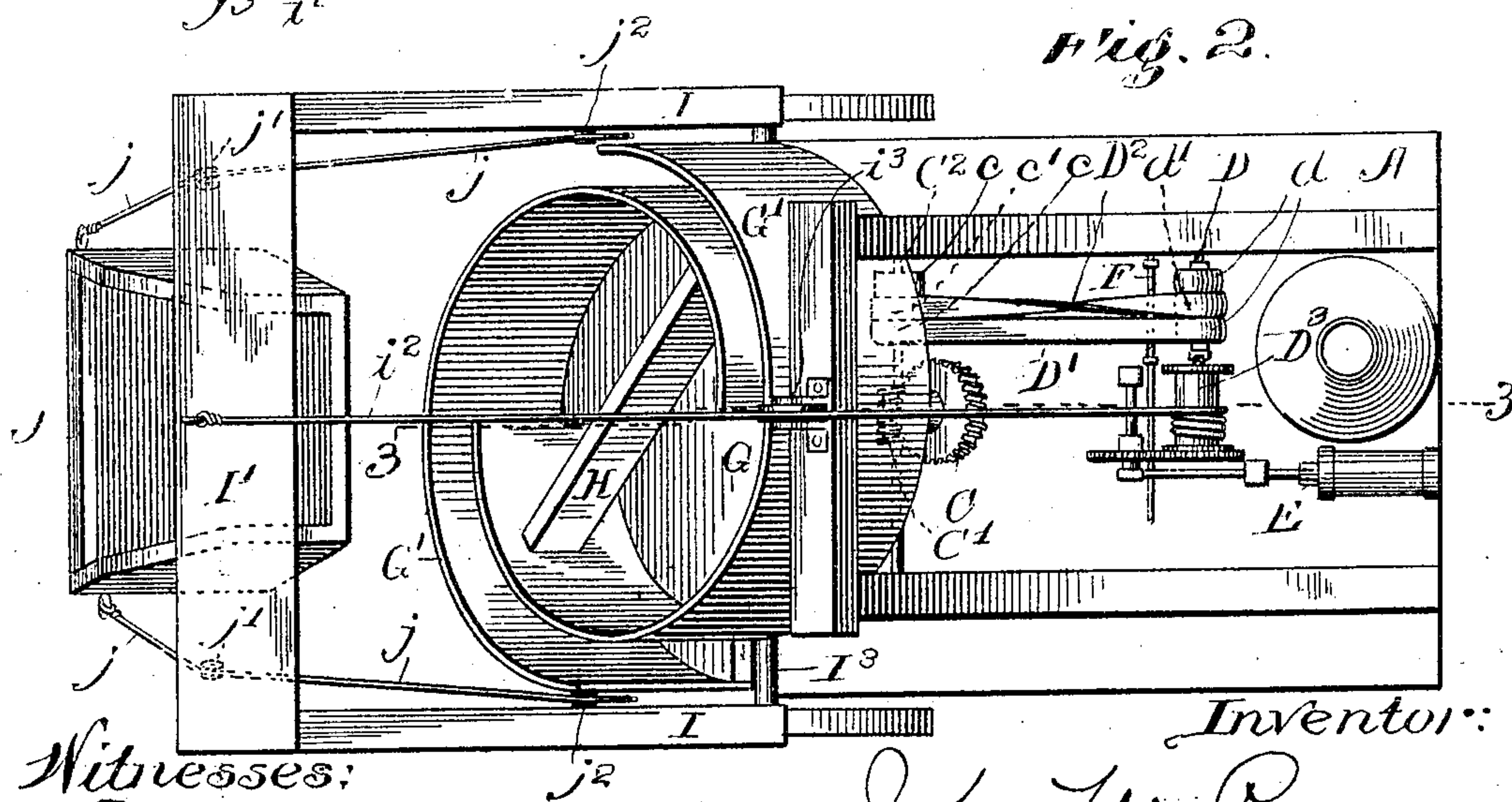
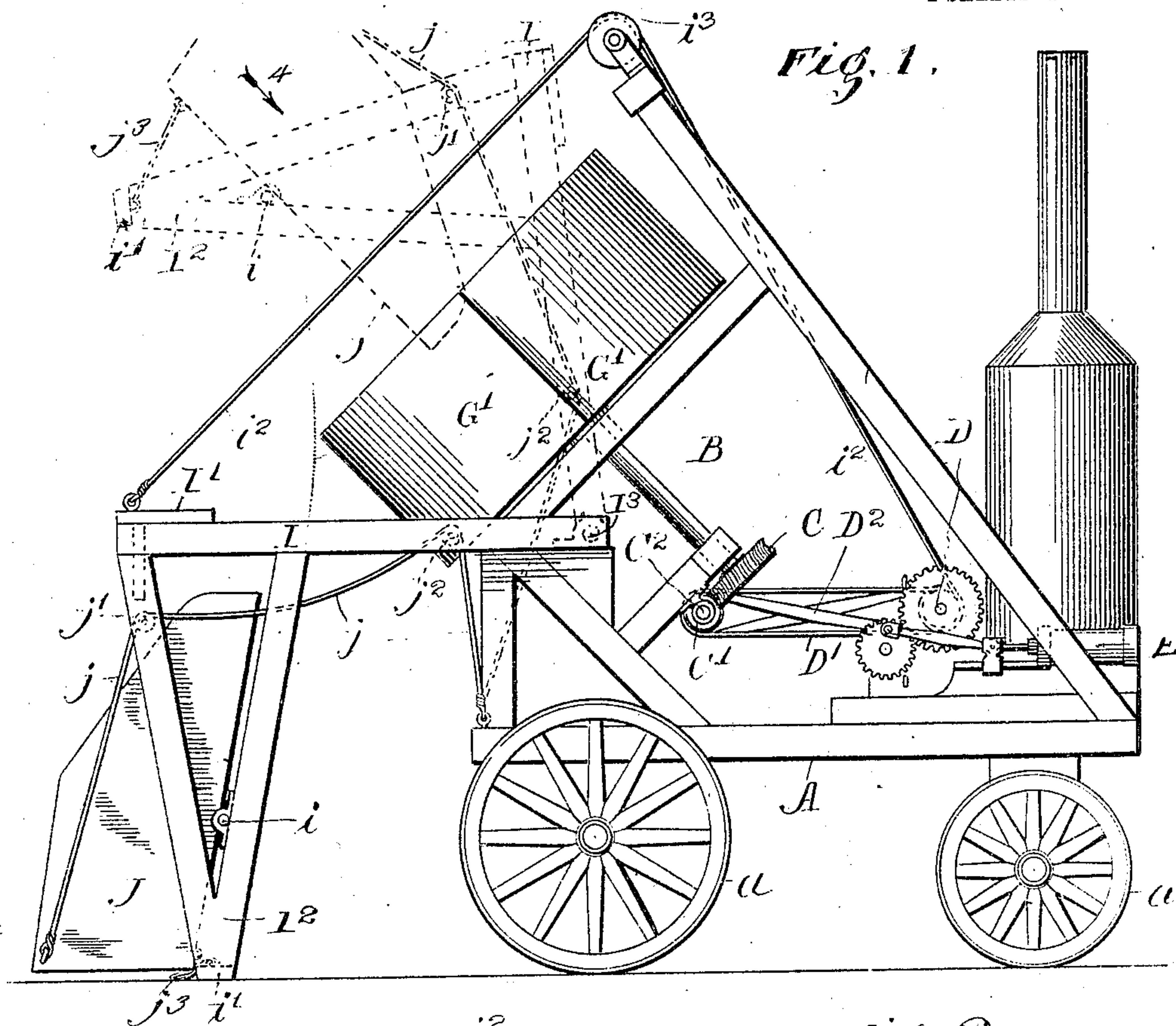
No. 804,261.

PATENTED NOV. 14, 1905.

J. W. PAGE.  
CONCRETE MIXER.

APPLICATION FILED JAN. 20, 1904.

2 SHEETS—SHEET 1.



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2 SHEETS—SHEET 2.

Fig. 3.

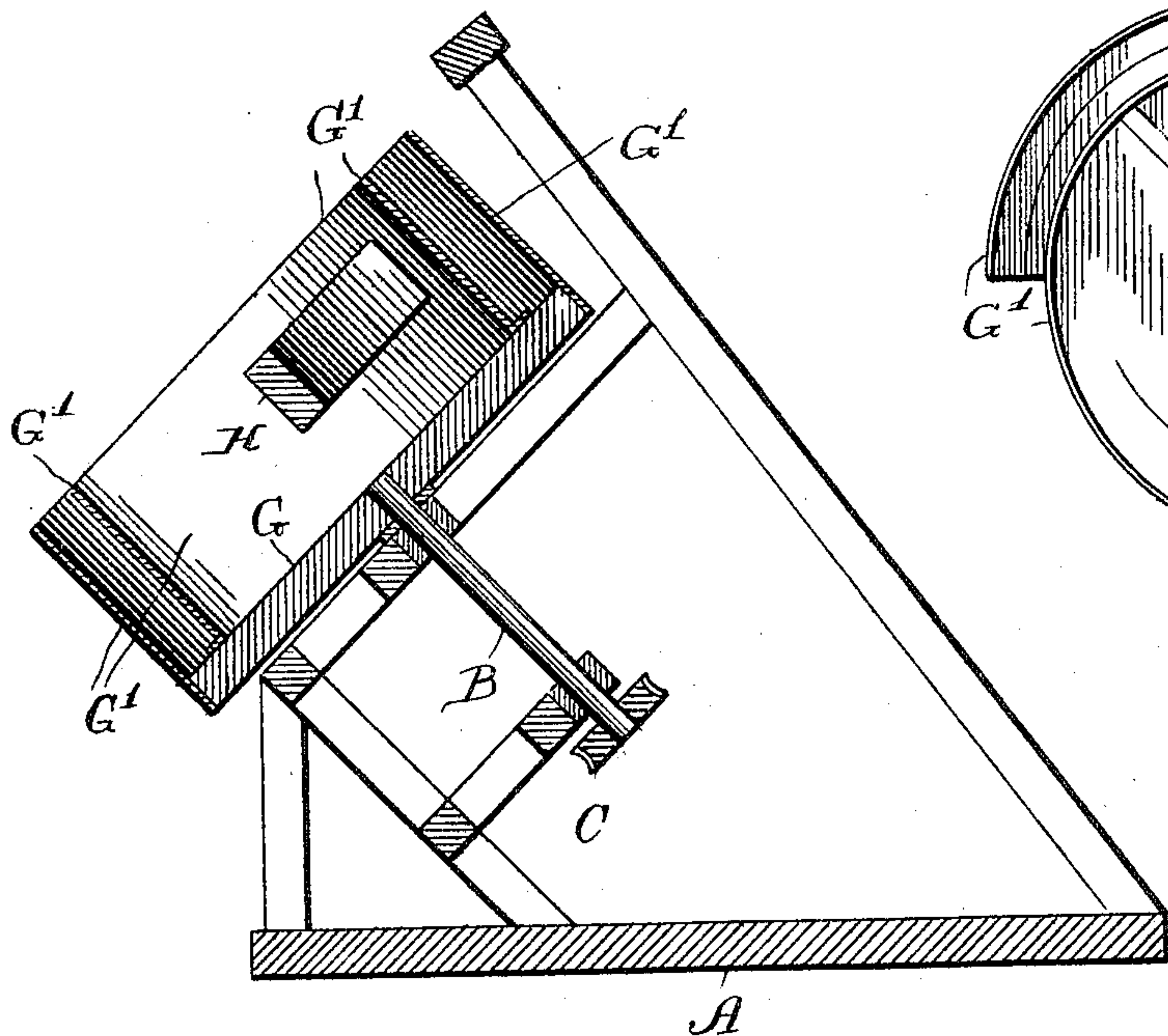


Fig. 4.

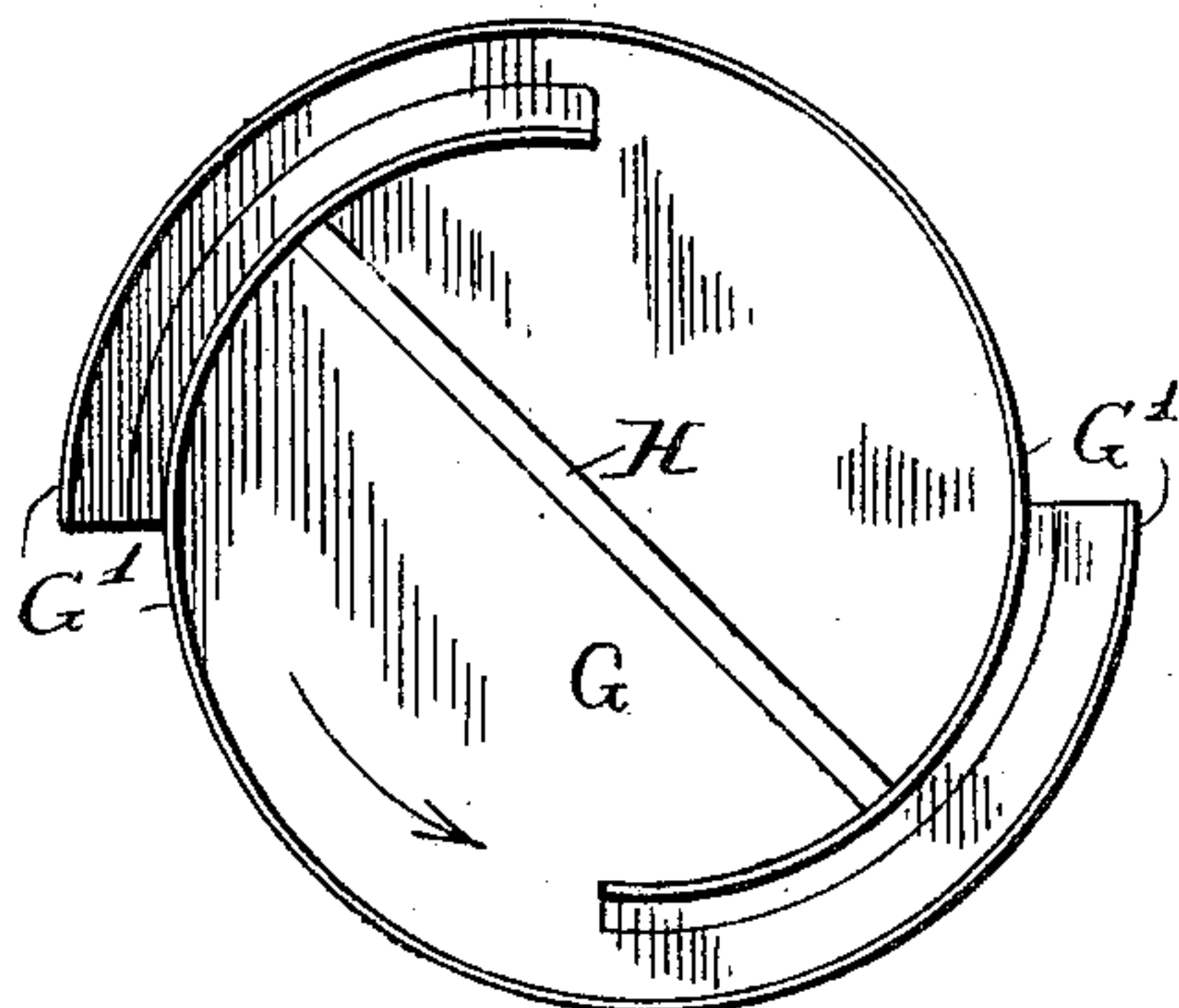


Fig. 5.

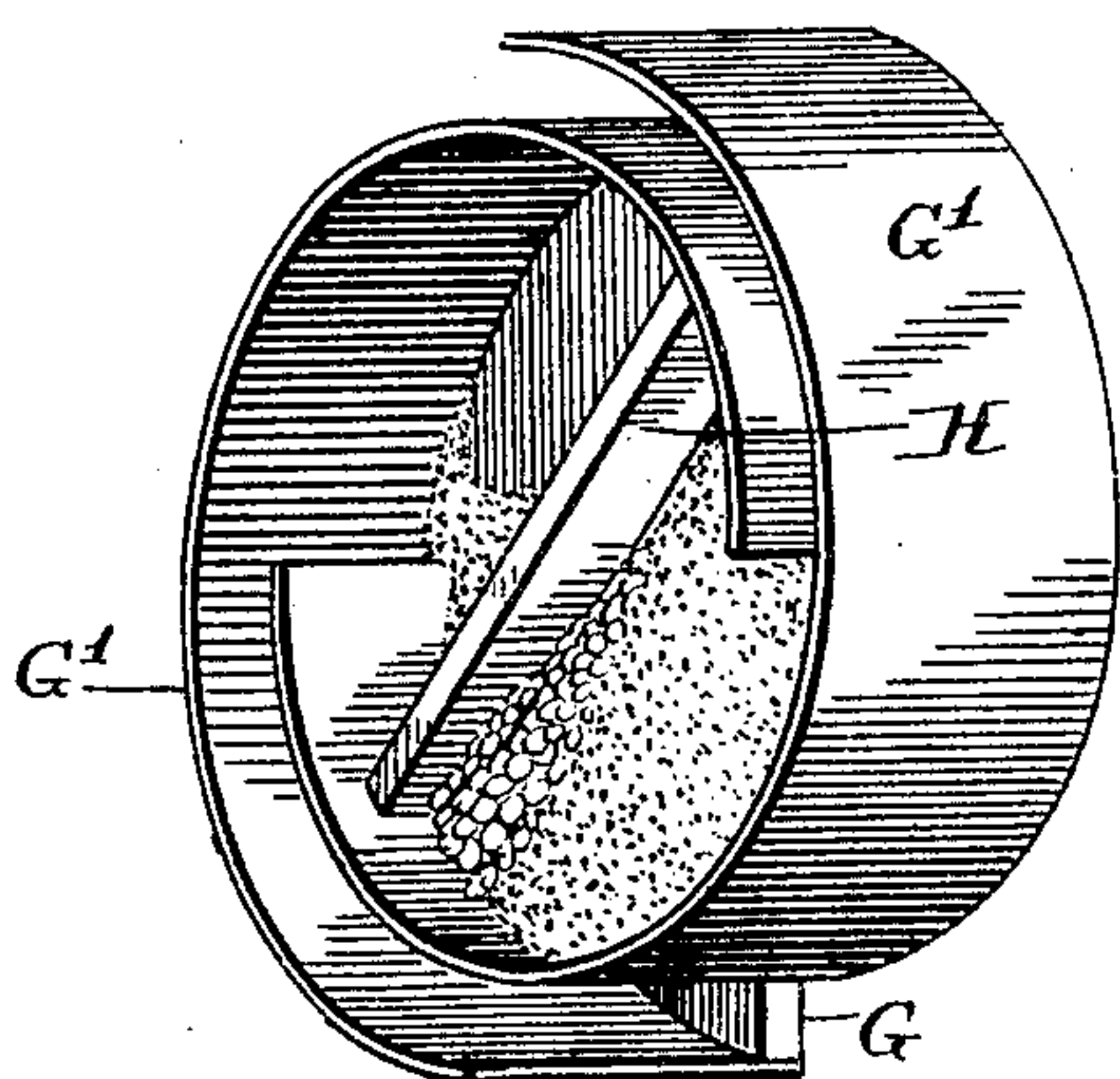
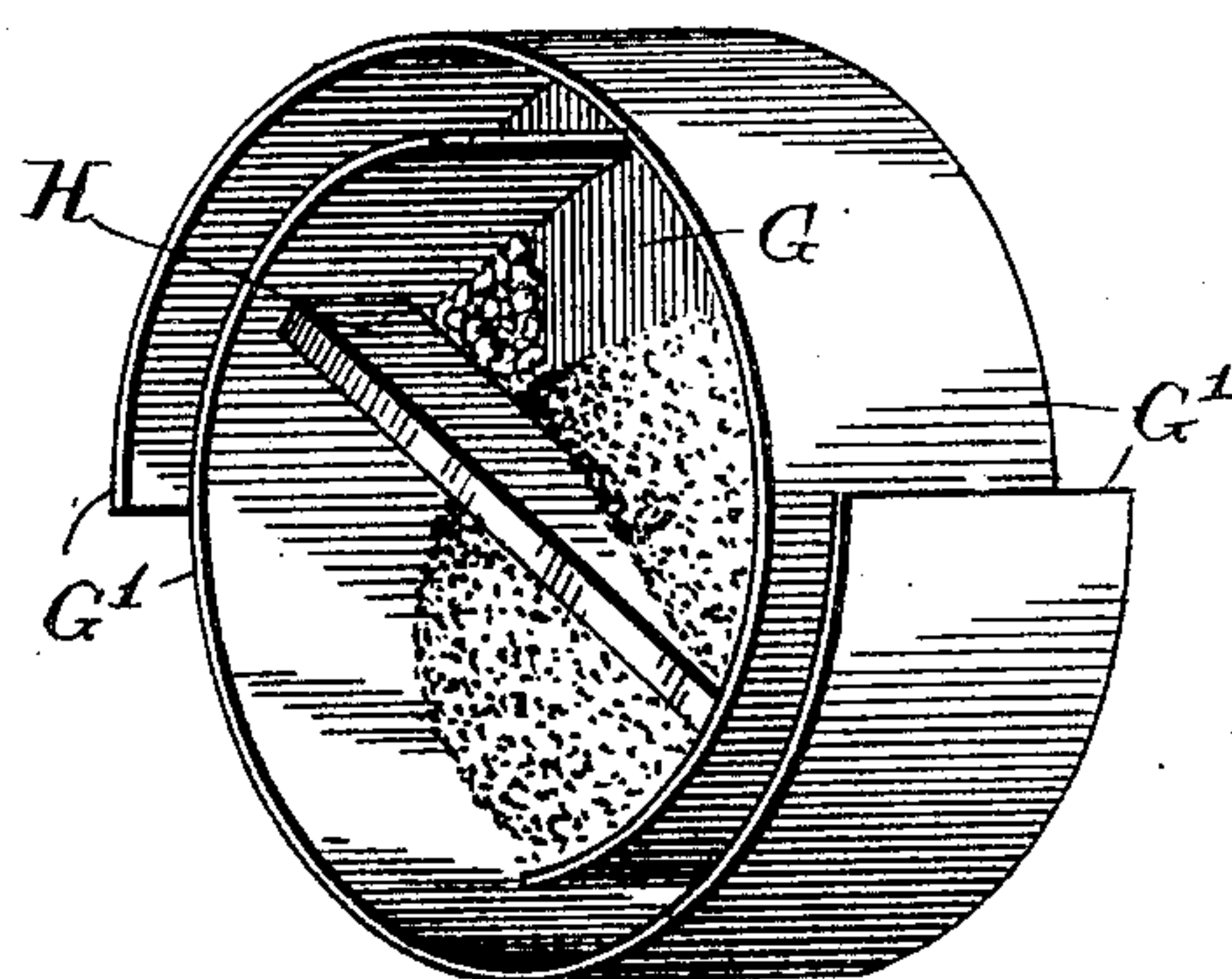


Fig. 6.



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# UNITED STATES PATENT OFFICE.

JOHN W. PAGE, OF CHICAGO, ILLINOIS.

## CONCRETE-MIXER.

No. 804,261.

Specification of Letters Patent.

Patented Nov. 14, 1905.

Application filed January 20, 1904. Serial No. 189,793.

*To all whom it may concern:*

Be it known that I, JOHN W. PAGE, a citizen of the United States of America, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Concrete-Mixers, of which the following is a specification.

My invention relates to certain new and useful improvements in concrete-mixers; and its object is to produce a device of this class which shall have certain advantages, which will appear more fully and at large in the course of this specification.

To this end my invention consists in certain novel features of construction, which are clearly illustrated in the accompanying drawings and described in this specification.

In the aforesaid drawings, Figure 1 is a side elevation of my improved concrete-mixer. Fig. 2 is a plan view of the same. Fig. 3 is a longitudinal section in the line 3 3 of Fig. 2. Fig. 4 is an end view of the mixing-chamber proper looking in the direction of the arrow 4 in Fig. 1. Fig. 5 is a perspective view of the mixing-chamber proper looking directly down upon the same; and Fig. 6 is a view similar to Fig. 5, but showing the mixer and its contents in a different position.

Referring to the drawings, A is a suitable framework or platform which forms a supporting-base for the device, and this platform is supported by suitable wheels  $\alpha$ , so that the entire structure can be readily moved about from place to place. Substantially at the center of the platform is journaled a shaft B, inclined at an angle of about forty-five degrees and extending upward toward the rear of the structure. This shaft is journaled upon suitable braces supported on the platform A, the particular construction of which is not material. The lower end of this shaft B is provided with a gear C in mesh with a worm C' upon a shaft C<sup>2</sup>. This shaft C<sup>2</sup> in the preferred form of construction is provided with two loose pulleys  $c$  and a fixed pulley  $c'$ .

D indicates a suitable shaft driven by an engine E, mounted on the platform A. On the shaft D there are three fixed pulleys  $d$   $d'$  and two belts run over the pulleys  $d$   $d'$  and  $c$   $c'$ , one of the belts D' being a straight belt and the other belt D<sup>2</sup> being a twisted belt. A belt-shifter F is provided, by which the two belts D' D<sup>2</sup> can be moved together in either direction. It will be seen that as these two belts are moved one way or the other one

belt or the other will always be running over the fixed pulleys on the shaft C<sup>2</sup>, while the other belt will be running over a loose pulley, and the direction of rotation of the shaft C<sup>2</sup> will be determined by which belt of the two runs over the fixed pulley. In this way a simple and efficient reversing mechanism is provided by which the direction of movement of the shaft C<sup>2</sup>, and consequently of the shaft B, can be readily changed. The particular form of the reversing mechanism is not essential to my invention; but it is essential to certain features of my invention that some sort of reversing mechanism be provided, and it will be evident from a further description that certain features of my invention can be used without any reversing mechanism whatever.

At the upper end of the shaft B is mounted the mixing-chamber proper. The bottom of this chamber consists of a flat plate G of wood or metal, preferably of the form indicated in Fig. 4. At the periphery of the plate G are side walls at right angles to said base, the side walls being indicated in the drawings by G'. It will be seen that the side walls are provided with suitable gaps and that at the gaps in the side walls the said walls overlap, one end extending outside of and beyond the other end, and that in the various gaps the outer portion of the wall extends in the same direction from the gap in all cases.

In the operation of this device cement, sand, and crushed stone or other suitable concrete-forming material is poured into the mixing-chamber by mechanism which will hereinafter be described and the mixing-chamber is rotated in the direction indicated by the arrow in Fig. 4. The material lies, when the chamber is at rest, in the angle formed between the side walls and the bottom of the mixing-chamber, and as the chamber is rotated the material moves upward, being carried by frictional contact with the wall until it reaches a point where the inclination of the wall is sufficiently steep to cause it to roll or tumble down, and when this point is reached the material will roll across the bottom of the mixing-chamber to the lowest point, in this way being thoroughly mixed. The material will pass the gaps in the side walls as long as the mixing-chamber is rotated in the direction indicated by the arrow in Fig. 4, for the material will fall along the inside wall where two walls overlap and will have no tendency to pass



out between the walls, the overhanging wall being so far in advance of the gap as to prevent any material from getting out. When it is desired, however, to empty the mixing-chamber, all that it is necessary to do is to reverse the rotation of the same. The material as it moves around the chamber will then follow, not the inside walls at one of the gaps, but the outside wall, and will consequently pass out through the gap. A wagon or other concrete-receptacle can be placed under the lower portion of the mixing-chamber, and as the chamber is rotated in the reverse direction the material will pour out into the wagon or receptacle. If desired, a spout may be used and the concrete carried off to any desired point.

In order to secure a more perfect mixing with my improved device, I provide a bar H, which crosses the mixing-chamber diametrically and is out of contact with the bottom of the same. In the use of a device of this sort the larger stones tend to lie upon the top of the pile of material and will consequently be engaged by this cross-bar, while the finer material passes freely underneath the same. As the device is rotated the fine material rolls along the side wall, being turned over and over and thoroughly mixed; but the heavy material which engages with the cross-bar is prevented by the cross-bar from rolling down, as seen in Fig. 5, and it is held by the cross-bar until the inclination of the cross-bar is sufficient to cause the heavy material to fall directly across the mixing-chamber instead of rolling along the wall. The heavy material is seen in this position—that is, just after it has fallen across the chamber in Fig. 6. Continued rotation of the chamber will cause the finer material to eventually entirely cover the heavier material. In other words, this cross-bar causes the heavy material to fall straight across the chamber instead of rolling along the walls, as does the fine material, and as the heavy material falls straight across the chamber it reaches the side wall before the finer material does and as a result is in position to be covered by the finer material when the latter reaches the proper point on the walls. By the use of this cross-bar then the heavy material is thoroughly mixed with the fine material, whereas in the absence of this cross-bar such complete mixing is difficult, because the heavy material merely rolls along the top of the pile of stuff in the mixing-chamber.

In addition to the mixing-chamber and the device for rotating the same I provide upon my improved structure a device for introducing the concrete-forming material for mixing, and this device will now be described. To the rear of the frame A, as at I<sup>3</sup>, are pivotally secured two bars I, connected by a transverse member I', these three members together forming a swinging frame. At the

rear of this frame are rigidly secured two downwardly - extending members I<sup>2</sup>, each formed of two bars or rods, and near the end of these members is a transverse shaft *i*. Upon the shaft *i* is pivoted a scoop J, which is, roughly speaking, in the shape of a rectangular box having the top and one end removed, as is shown in the drawings. The parts are so arranged that when the swinging frame is swung down to the position illustrated in Fig. 1, with its lower end resting upon the ground, the lower end of the scoop J will also swing down, its rotation about its shaft being limited by engagement with a transverse bar *i'*, extending across the lower end of the members I<sup>2</sup>. When the pivoted framework is swung up, this scoop will take the position shown in dotted lines in Fig. 1 and will dump its contents into the open end of the mixing-chamber. A rope *i'*<sup>2</sup>, running over a pulley *i'*<sup>3</sup>, mounted upon the stationary frame of the machine, connects the swinging frame I I' with a drum D<sup>3</sup> on the shaft D, and a suitable clutch (not illustrated in the drawings) is provided by which the drum D<sup>3</sup> can be thrown into and out of engagement with the shaft, as desired, to raise and lower the pivoted framework. In order to swing this scoop upon its pivot I<sup>3</sup> from position shown in solid lines in Fig. 1 to that shown in dotted lines in the same figure, ropes *j* extend from the lower rear corners of the scoop, as seen in solid lines in Fig. 1, over pulleys *j'* *j'*<sup>2</sup> on the swinging frame, the opposite end of the ropes being secured to the framework A of the machine at a point below the pivot I<sup>3</sup> of the swinging frame. As the swinging frame is swung up it is evident that the distance between the pulleys *j'* and the points of attachment of the ropes *j* with the framework A will be increased, and consequently the ropes *j* will be drawn tight and will draw the point of attachment of the rope to the scoop toward the pulleys *j'*, thus tilting the open end of the scoop down toward the mixing-chamber. A short rope *j'*<sup>3</sup> connects the lower end of the scoop with the cross-bar *i'* and prevents the scoop from tilting too far when the swinging frame is in its raised position.

I realize that considerable variation is possible in the details of this construction without departing from the spirit of the invention, and I therefore do not intend to limit myself to the specific form herein shown and described.

I claim as new and desire to secure by Letters Patent—

1. In a device of the class described, the combination with a suitable framework, of a mixing-chamber supported thereby and rotatable upon an inclined axis, a swinging frame pivoted to the framework below the chamber and adapted to be swung into position above the same, a scoop pivoted to the swinging frame, means for moving the swinging frame about



its pivot, and means for automatically swinging the scoop upon its pivot on the frame to dump the contents of the scoop into the mixing-chamber as the swinging frame is raised.

5 2. In a device of the class described, the combination with a suitable framework, of a mixing-chamber supported thereby and rotatable upon an inclined axis, a swinging frame pivoted to the framework below the chamber, and adapted to be swung into position above the same, a scoop pivoted to the swinging frame, means for moving the swinging frame about its pivot, a rope extending from the framework over pulleys on the swinging frame to the scoop, and adapted, as the swinging frame is raised, to swing the scoop upon its pivot to dump its contents into the mixing-chamber.

3. In a device of the class described, the combination with a mixing-chamber mounted on

an inclined axis and means for rotating said chamber, of a bar extending transversely across said chamber and leaving a space for the passage of material between itself and the bottom thereof, said bar being constructed and 25 arranged to permit the fine material to pass under it and to catch the coarser material and hold it until the same falls by its own weight, whereby the coarse material is deposited underneath the fine material substantially as and 30 for the purpose set forth.

In witness whereof I have signed the above application for Letters Patent, at Chicago, in the county of Cook and State of Illinois, this 16th day of January, A. D. 1904.

JOHN W. PAGE.

Witnesses:

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CHAS. O. SHERVEY.