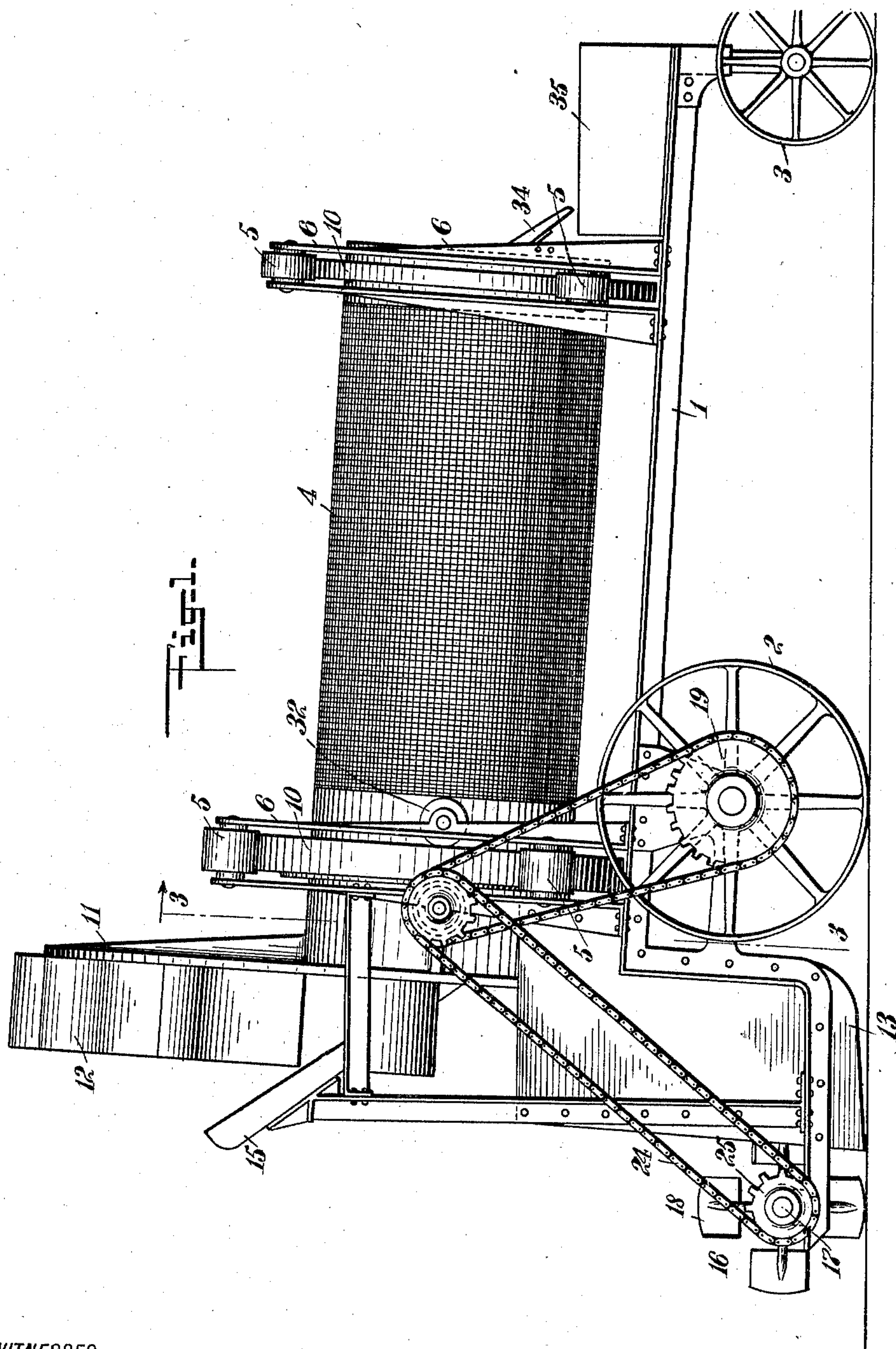


A. J. DINKEL.  
 DRUM WITH LOADING AND DISCHARGING APPARATUS.  
 APPLICATION FILED SEPT. 17, 1909. Patented Aug. 16, 1910.  
 967,345. 6 SHEETS—SHEET 1.



WITNESSES  
*F. L. Hackenberg*  
*H. Whiting*

INVENTOR  
*Andrew J. Dinkel*  
 BY *Mumford*  
 ATTORNEYS

A. J. DINKEL.  
 DRUM WITH LOADING AND DISCHARGING APPARATUS.  
 APPLICATION FILED SEPT. 17, 1909.

967,345.

Patented Aug. 16, 1910.

5 SHEETS—SHEET 2.

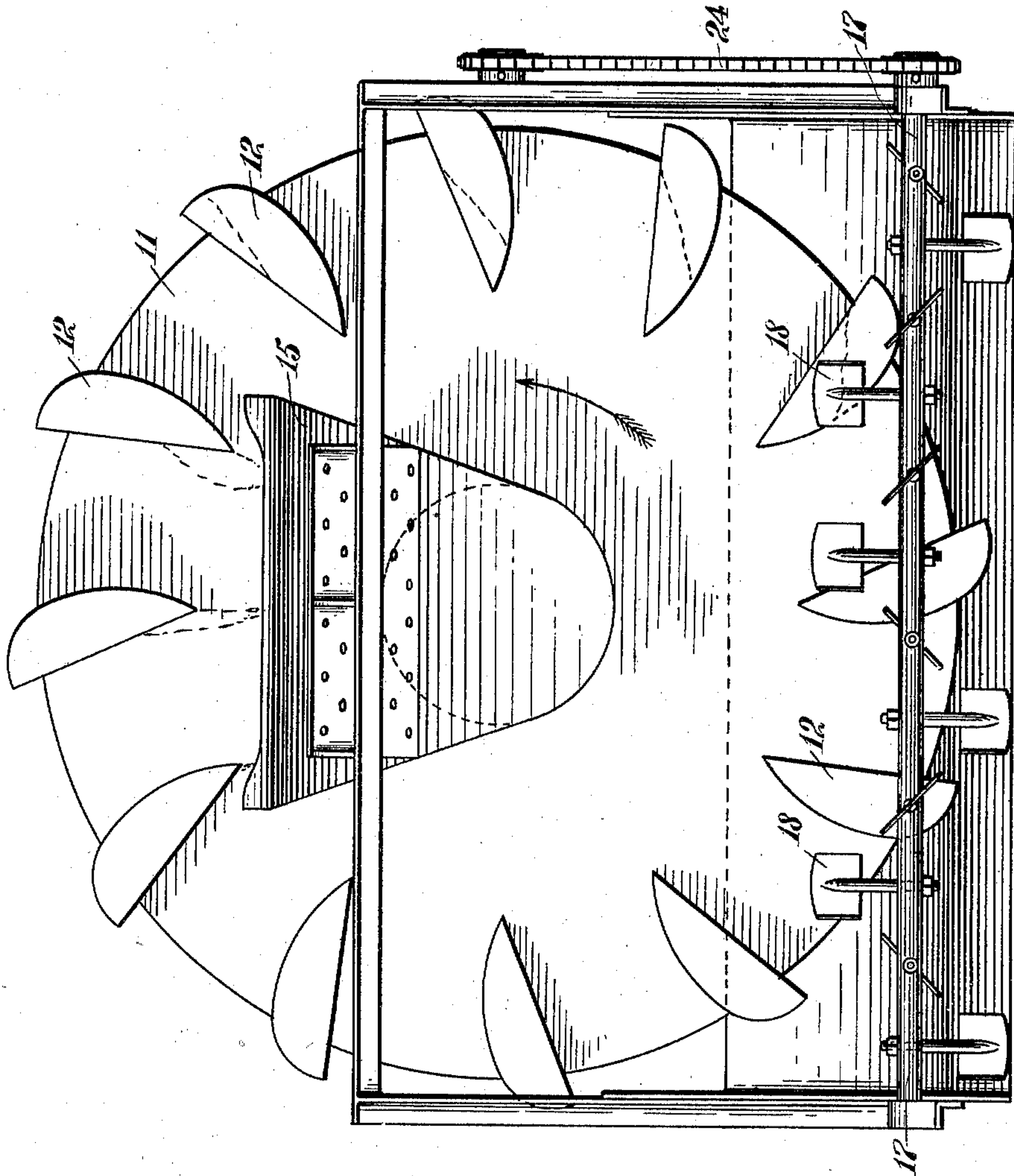


Fig. 2.

WITNESSES

*L. G. Hackmeyer.*  
*H. Whitney.*

INVENTOR

*Andrew J. Dinkel*

BY

*Mumford & Co.*  
 ATTORNEYS

967,345.

A. J. DINKEL.  
DRUM WITH LOADING AND DISCHARGING APPARATUS.  
APPLICATION FILED SEPT. 17, 1909.

Patented Aug. 16, 1910.

5 SHEETS—SHEET 3.

Fig. 4—

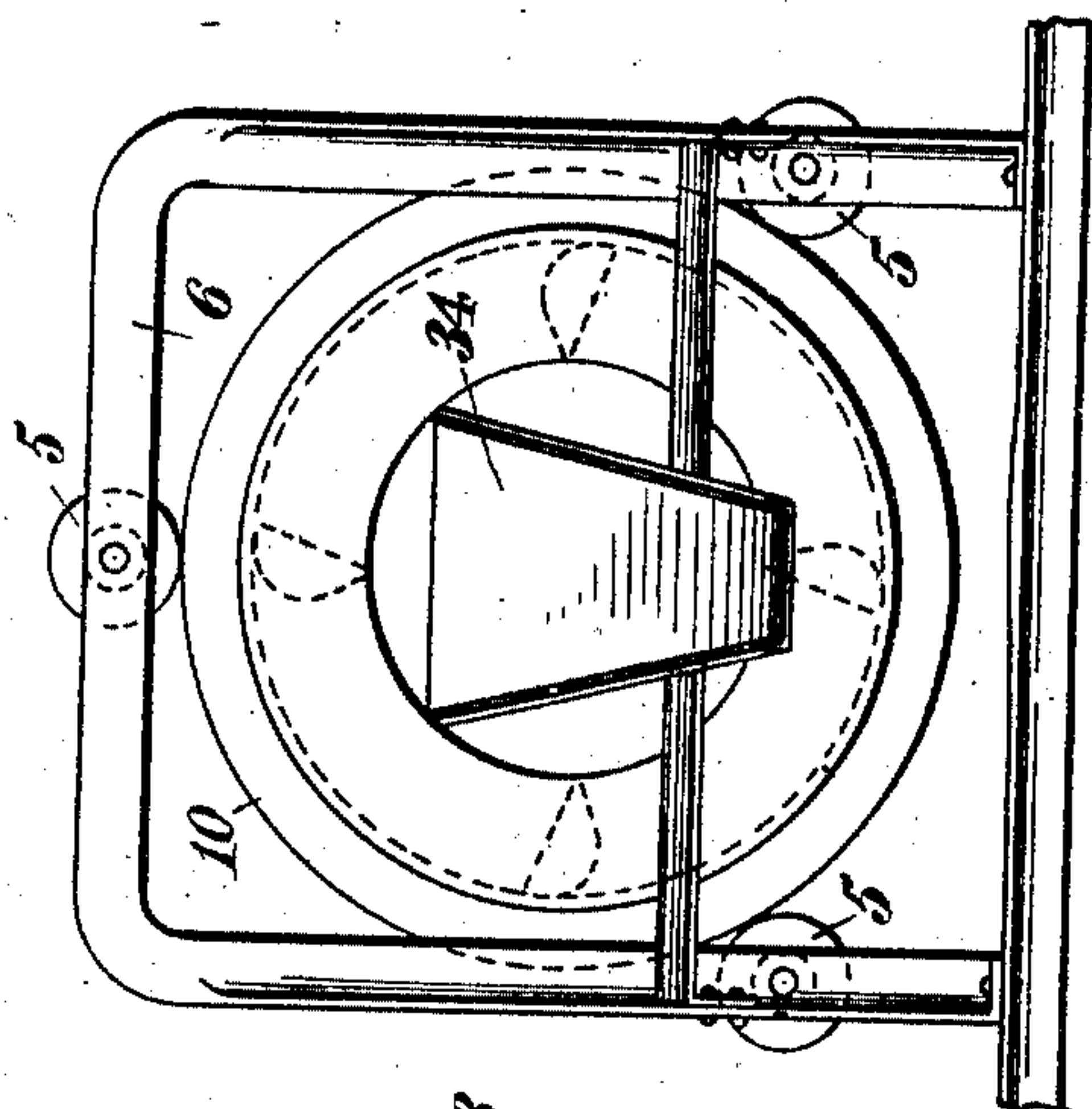
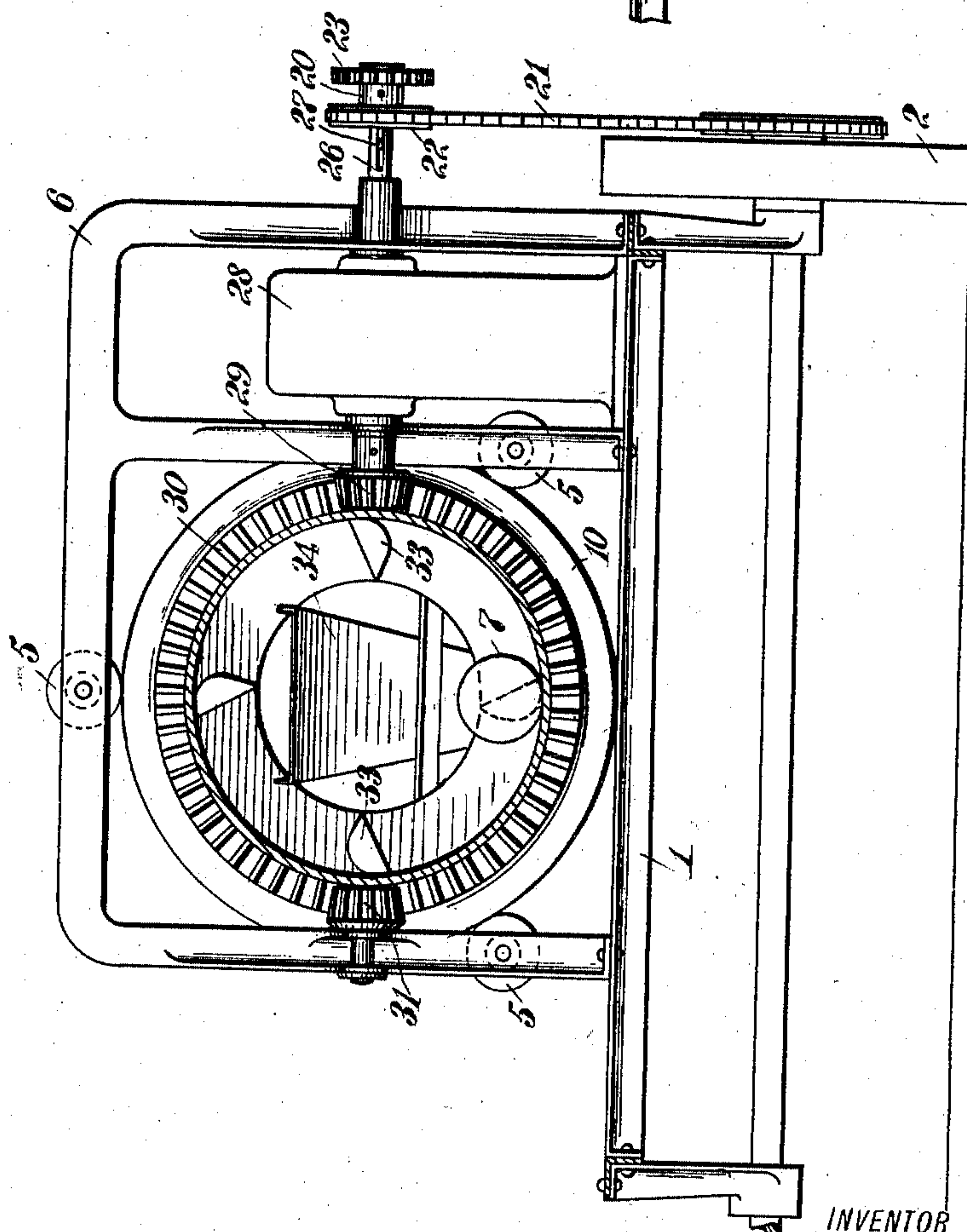


Fig. 5—



WITNESSES

*F. L. Hachemberg*  
*H. H. Hachemberg*

INVENTOR

*Andrew J. Dinkel*

BY

*Mumford*  
ATTORNEYS



A. J. DINKEL.  
 DRUM WITH LOADING AND DISCHARGING APPARATUS.  
 APPLICATION FILED SEPT. 17, 1909.

967,345.

Patented Aug. 16, 1910.

5 SHEETS—SHEET 4.

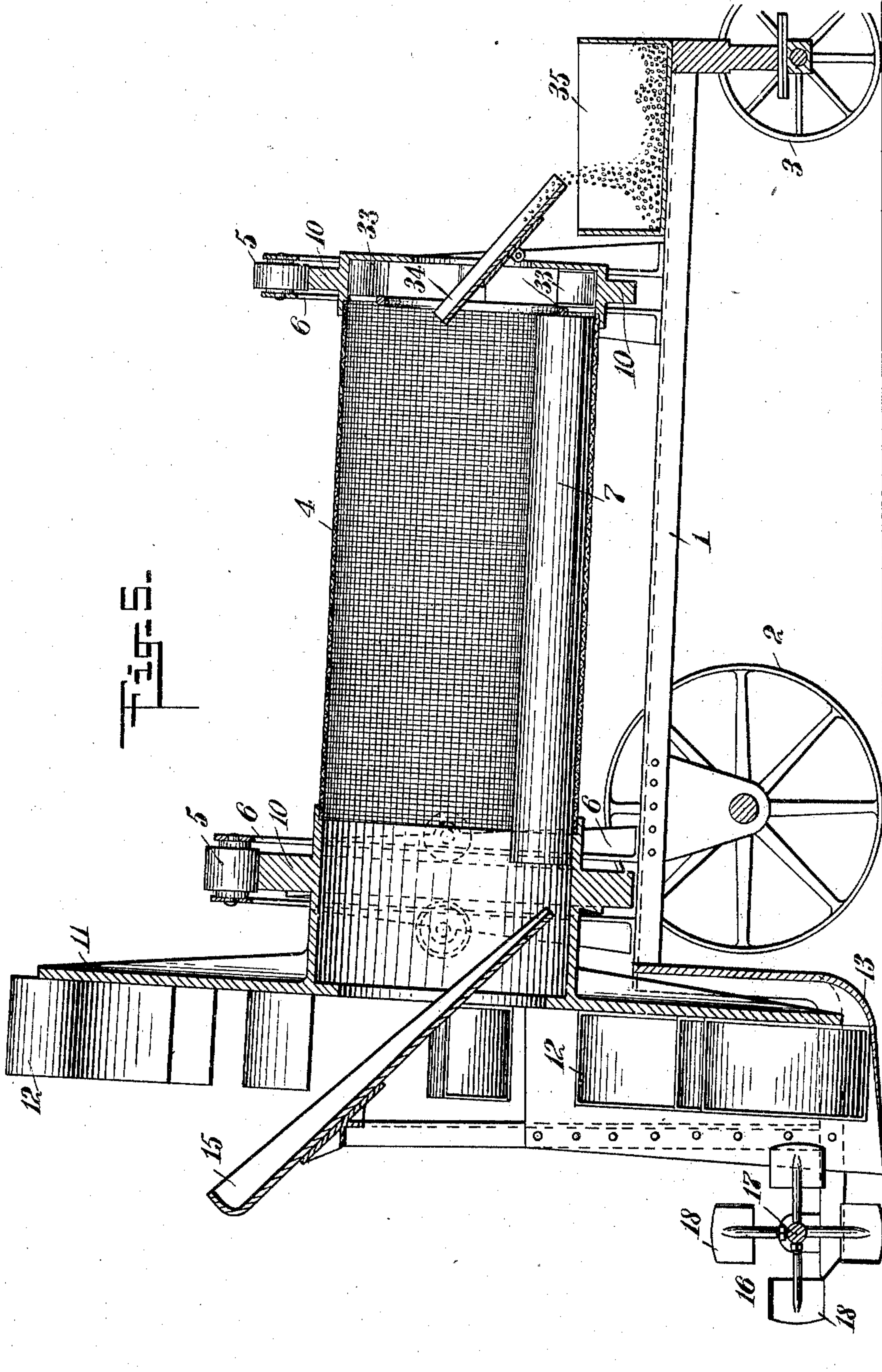


Fig. 5.

WITNESSES

*F. B. Hackenberg.*

*H. Whitney.*

INVENTOR

*Andrew J. Dinkel*

BY

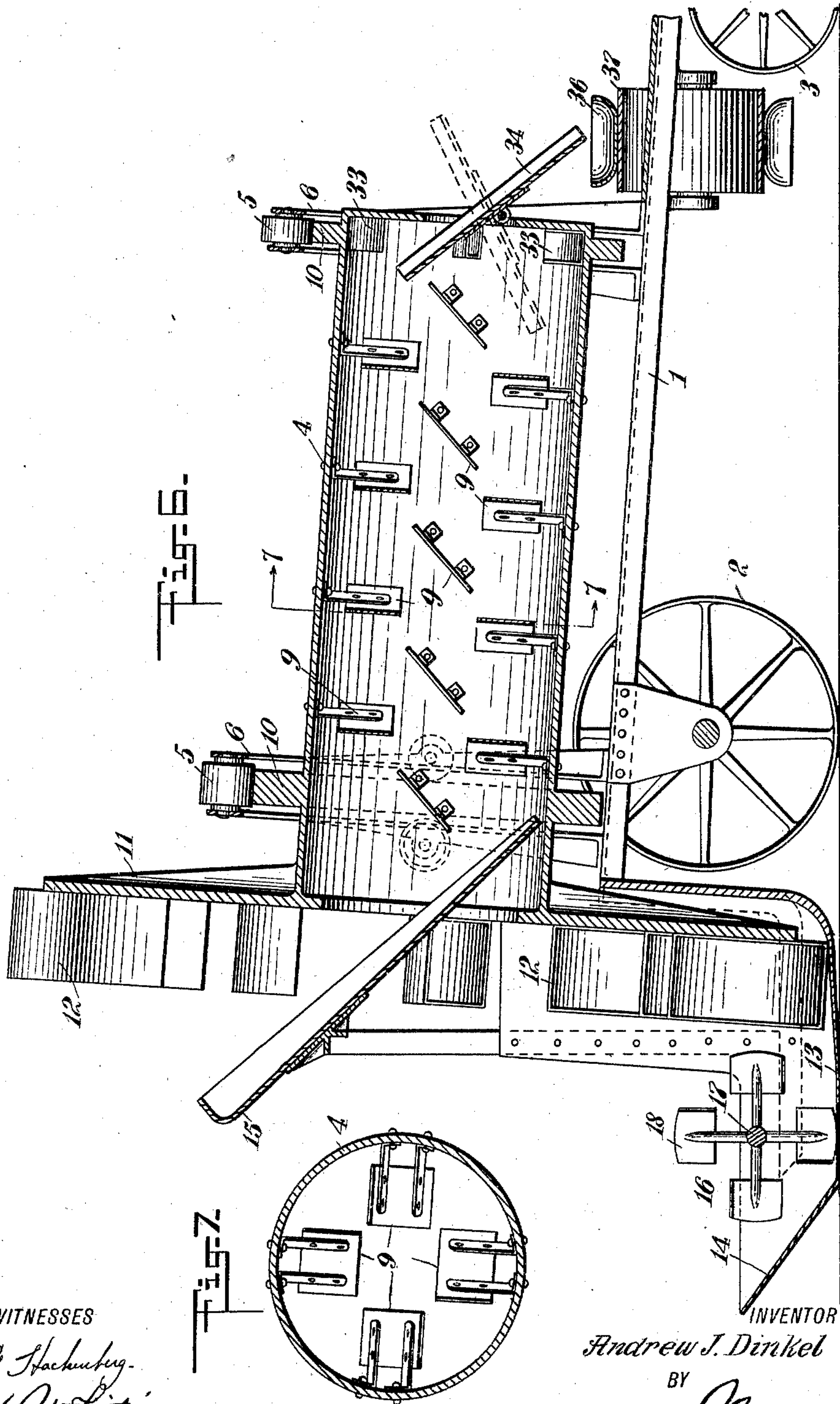
*Mum & Co.*  
 ATTORNEYS

A. J. DINKEL.  
 DRUM WITH LOADING AND DISCHARGING APPARATUS.  
 APPLICATION FILED SEPT. 17, 1909.

967,345.

Patented Aug. 16, 1910.

5 SHEETS—SHEET 6.



WITNESSES  
*J. G. Hachburg*  
*H. W. Hitting*

INVENTOR  
*Andrew J. Dinkel*  
 BY *Munn & Co*  
 ATTORNEYS



# UNITED STATES PATENT OFFICE.

ANDREW J. DINKEL, OF CLARINDA, IOWA.

DRUM WITH LOADING AND DISCHARGING APPARATUS.

967,345.

Specification of Letters Patent. Patented Aug. 16, 1910.

Application filed September 17, 1909. Serial No. 518,144.

*To all whom it may concern:*

Be it known that I, ANDREW J. DINKEL, a citizen of the United States, and a resident of Clarinda, in the county of Page and State of Iowa, have invented a new and Improved Drum with Loading and Discharging Apparatus, of which the following is a full, clear, and exact description.

This invention relates to a drum for mixing or separating various kinds of material, such as sand, grain, cement, or gravel, and particularly relates to the loading and discharging apparatus combined therewith.

An object of this invention is to provide a device which will be simple in construction, strong, durable, and inexpensive to manufacture, maintain and operate.

Another object of this invention is to provide a simple scoop-elevator for a drum with suitable means for feeding the material to the scoop elevator at the proper point.

A further object of this invention is to provide suitable means for removing the material from the drum, so arranged as to be made inoperative at will.

These and further objects, together with the construction and combination of parts, will be more fully described hereinafter and particularly set forth in the claims.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views, and in which—

Figure 1 is a side view in elevation, showing one form of my device; Fig. 2 is an end view in elevation of the form illustrated in Fig. 1; Fig. 3 is a vertical transverse section on the line 3—3 of Fig. 1; Fig. 4 is a fragmentary rear view of the form illustrated in Fig. 1; Fig. 5 is a vertical longitudinal section of the form illustrated in Fig. 1; Fig. 6 is a vertical longitudinal section of another form of my device; and Fig. 7 is a transverse vertical section on the line 7—7 of Fig. 6.

Referring more particularly to the separate parts of my invention, 1 indicates a suitable carriage, which is supported at the front by suitable tractor wheels 2, and at the rear by suitable steering wheels 3. The bed of the carriage is preferably inclined from front to rear, to give a suitable inclination to a drum 4, which is rotatably supported thereon. The means for supporting

the drum consists of a plurality of rotatable rollers 5, which are journaled in suitable frames 6 secured on the carriage 1, and which are adapted to engage cylindrical flanges 10 on the drum 4. The drum 4 may be of any suitable form and material, and as illustrated in Figs. 1 to 5, consists of a cylindrical screen which is adapted to separate the material fed thereto. Coacting with this screen, there is provided a suitable roller 7, which is pivotally secured at one end to the drum by any suitable means, such as a rod 8, and is adapted to act as a clod-crusher and remove the lumps from the material within the drum.

In the form illustrated in Fig. 6, the drum 4 preferably consists of a sheet-metal cylinder provided with a plurality of suitable baffle plates 9 secured to the cylinder in any suitable manner, preferably in staggered relation. These baffle plates are adapted to mix any material, such as concrete, cement, or the like.

Both forms of my device are provided at the front end with a suitable elevator 11, which is preferably in the form of a circular member having a plurality of scoops 12 secured thereto, and so arranged as to scoop up the material fed onto an apron 13, the latter being secured to the carriage 1 in a position underlying the elevator 11.

In the form illustrated in Figs. 1 to 5, the apron 13 is preferably in the form of a scraper apron, which is adapted to slide along the ground and receive material thereon. In the form illustrated in Fig. 6, the apron is turned up at its outer ends at 14, forming a trough to receive the material. In both forms, the material raised by the elevator 11 is automatically deposited, when the scoops reach their uppermost point, into a chute 15, which is supported on the carriage 1 in any suitable manner, and is so arranged as to deliver the material into the interior of the drum 4.

Rotatably supported on the carriage 1 in any suitable manner, there is provided a scraping feeder 16, which consists of a shaft 17 having a plurality of blades 18 secured thereon in such a relation to each other that they will feed the material from opposite ends toward the center, and deliver it on to the apron 13 at a point under the center of the elevator 11.

One or more of the tractor wheels 2 are



provided with a sprocket wheel 19, which drives a sleeve 20 by means of a chain 21 and a sprocket wheel 22. The sleeve 20 is provided with another sprocket wheel 23, which drives, by means of a chain 24, and a sprocket wheel 25, the feeder 16. The sleeve 20 is secured to a shaft 26 in such a manner that it may be clutched and unclutched thereon by means of a clutch, indicated at 27, whereby the traction drive may be thrown in and out at will. The shaft 26 may be driven in any suitable manner by means of a motor 28, when the traction drive is thrown out of commission. This shaft 26 has also secured thereon at the inner end, a bevel pinion 29, which meshes with a bevel gear 30 secured in any well known manner to the drum 4. In order to balance the drive of the gear 30 by the pinion 29, there is provided a similar pinion 31, which is rotatably supported at the opposite side on the drum 4, and meshes with the gear 30. In order to keep the gear 30 in mesh with the pinions 29 and 31, there is provided a roller 32 rotatably supported in the frame 6 on each side of the drum 4.

In each form of my device, I provide a device for delivering the material from the inside of the drum 4 to the outside thereof, which consists of a plurality of scoops 33 secured to the rear end of the drum 4 in any well known manner, and so arranged as to carry the material from the bottom of the drum 4 to the top thereof during its rotation, and deliver it to a chute 34, which is preferably pivoted to the rear end of the drum in such a manner that it may be tilted, to direct the material deposited therein either outside of the drum or back into the interior of the drum.

In the form illustrated in Figs. 1 to 5, the material, which will probably consist of the oversize from the screen, will be delivered into a suitable receptacle 35, supported on the former in any suitable manner. In the form illustrated in Fig. 6, however, the material, which will probably consist of mixed concrete, cement or the like, will be delivered into suitable receptacles 36 on an endless conveyer 37, which may be supported on the carriage 1 in any suitable manner.

The operation of both forms of my invention will be readily understood from the above description.

In the form illustrated in Figs. 1 to 5, the device may be driven over the ground, the scraper feeder 16 cutting the material from the ground and depositing it in the apron 14 in a position directly under the center of the elevator 11. Here the material is scooped up by the scoops 12 on the elevator, which deposit it on the chute 15, which in turn delivers it to the interior of the screen drum 4. Here the fine material is separated from the coarse, and passes through the

screen either onto the ground below or into a suitable receptacle secured to the carriage, below the screen. The oversize from the screen is caught at the rear end of the drum 4 in the scoops 33 and elevated to a position above the chute 34 into which it is deposited, from whence it is delivered into the receptacle 35.

In the form illustrated in Figs. 6 and 7, the ingredients of the material, such as concrete, cement or the like, are deposited in the apron 13 and fed to the elevator 11 by means of the feeder 16. The elevator 11 in this case also scoops up the material and delivers it onto the chute 15, from whence it slides into the interior of the drum 4, where it is exposed to the stirring and mixing action of the baffle plates 9. When the thoroughly mixed material reaches the rear end of the drum 4, it is scooped up by the buckets 33, which deposit it into the chute 34, which in turn delivers it to the receptacles 36 on the endless conveyer 37. If the conveyer 37 is in such a position that a receptacle 36 is not beneath the chute 34, the chute may be tilted back into the position indicated in dotted lines in Fig. 6, when the material will be delivered back into the drum, until such time as a succeeding receptacle 36 occupies a position directly below the chute 34, when said chute may be tilted back into the position indicated by the full lines in Fig. 6.

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

1. In a device of the class described, the combination with a support, of a drum on said support, a scoop elevator on said drum, an apron connected to said elevator, and a rotary spirally-bladed feeder for said elevator.

2. In a device of the class described, the combination with a support, of a drum on said support, a scoop elevator on said drum, an apron underlying said elevator, and a rotary feeder having angularly arranged blades thereon, for feeding the material on said apron beneath said scoop elevator.

3. In a device of the class described, the combination with a support, of a drum on said support, a scoop elevator on said drum, means for feeding said elevator, comprising an apron connected to said elevator and a rotary bladed scraper, and a scoop deliverer for removing material from said drum.

4. In a device of the class described, the combination with a support, of a drum on said support, a scoop elevator on said drum, an apron underlying said elevator, a rotary feeder having angularly arranged blades thereon, for feeding the material on said apron beneath said scoop elevator, and a scoop deliverer for removing material from said drum.



5. In a device of the class described, the combination with a support, of a drum on said support, a scoop elevator on said drum, an apron underlying said elevator, a rotary feeder having angularly-arranged blades thereon, for said elevator, a scoop deliverer for removing material from said drum, and a chute for directing the material from said deliverer.

6. In a device of the class described, the combination with a support, of a drum on said support, a scoop elevator on said drum, an apron underlying said elevator, a rotary feeder having angularly-arranged blades thereon, for feeding material to said scoop elevator, a scoop deliverer for removing material from said drum, a chute for directing the material from said deliverer, and means for receiving the material from said chute.

7. In a device of the class described, the combination with a support, of a plurality of rollers rotatably journaled in said support, a drum supported on said rollers, a scoop elevator on said drum, an apron underlying said elevator, a rotary feeder having angularly-arranged blades thereon, for feeding the material on said apron beneath said scoop elevator, a scoop deliverer for removing material from said drum, a chute for directing the material from said deliverer, and means for receiving the material from said chute.

8. In a device of the class described, the combination with a rotatable drum, of an elevator having a plurality of scoops thereon, rigidly connected to said drum, a chute for delivering the material from said elevator to said drum, an apron underlying said elevator, a rotary feeder having angularly-arranged blades thereon, for feeding the material on said apron beneath said scoop elevator, a scoop deliverer for removing material from said drum, a chute for directing the material from said deliverer, and means for receiving the material from said chute.

9. In a device of the class described, the combination with a rotatable drum, of an elevator having a plurality of scoops thereon, rigidly connected to said drum, a chute for delivering material from said elevator to said drum, an apron underlying said elevator, a rotary feeder having angularly-arranged blades thereon, for feeding the material on said apron beneath said scoop elevator, and a scoop deliverer for removing material from said drum.

10. In a device of the class described, the combination with a carriage, of traction wheels on said carriage, a rotatable drum supported on said carriage, rollers for supporting said drum, means for driving said drum, a rotary scoop elevator rigidly connected to said drum, an apron underlying said elevator, a rotary bladed feeder for

feeding the material on said apron beneath said scoop elevator, and means for driving said feeder.

11. In a device of the class described, the combination with a carriage, traction wheels on said carriage, a rotatable drum supported on said carriage, rollers for supporting said drum, means for driving said drum, a rotary scoop elevator rigidly connected to said drum, an apron underlying said elevator, a rotary bladed feeder for feeding material on said apron beneath said scoop elevator, means for driving said feeder, and a chute adapted to deliver the material from said elevator to said drum.

12. In a device of the class described, the combination with a carriage, of traction wheels on said carriage, a rotatable drum supported on said carriage, rollers for supporting said drum, means for driving said drum, a rotary scoop elevator rigidly connected to said drum, an apron underlying said elevator, a rotary bladed feeder for feeding material on said apron beneath said scoop elevator, means for driving said feeder, a chute adapted to deliver the material from said elevator to said drum, and a scoop deliverer for removing material from said drum.

13. In a device of the class described, the combination with a carriage, of traction wheels on said carriage, a rotatable drum supported on said carriage, rollers for supporting said drum, means for driving said drum, a rotary scoop elevator rigidly connected to said drum, an apron underlying said elevator, a rotary bladed feeder for feeding material on said apron beneath said scoop elevator, means for driving said feeder, a chute adapted to deliver the material from said elevator to said drum, a scoop deliverer for removing material from said drum, a chute for directing the material from said deliverer, and means for receiving the material from said chute.

14. In a device of the class described, the combination with a rotatable drum, of an elevator having a plurality of rigidly-connected scoops connected to said drum, a chute for delivering the material from said elevator to said drum, a scoop deliverer for removing the material from said drum, and a chute for directing the material from said deliverer.

15. In a device of the class described, the combination with a rotatable drum, of an elevator having a plurality of rigidly-connected scoops thereon, connected to said drum, a chute for delivering the material from said elevator to said drum, a deliverer for removing the material from said drum, comprising a plurality of scoops rigidly connected to said drum, and a chute pivotally connected to said drum and adapted to receive the material from said deliverer.



16. In a device of the class described, the combination with a drum, of an apron connected to said drum, and a plurality of scoops rigidly secured to said drum and adapted to be rotated thereby and also adapted to scoop material from said apron.

17. In a device of the class described, the combination with a drum, of an apron connected to said drum, a plurality of scoops rigidly secured to said drum and adapted to be rotated thereby and also adapted to scoop material from said apron, and means for forcing the material on said apron subjacent the path of said scoops.

18. In a device of the class described, the combination with a drum, of an apron connected to said drum, a plurality of scoops secured to said drum and adapted to be rotated thereby and also adapted to scoop material from said apron, and a feeder rotating

at right-angles to the movement of said scoops and adapted to force the material into the path of said scoops.

19. In a device of the class described, the combination with a drum, of an apron secured to said drum, a plurality of scoops, open, unconfined and individually secured to said drum and adapted to be rotated thereby and also adapted to scoop material from said apron, and a feeder rotating at right-angles to the movement of said scoops and adapted to force the material into the path of said scoops.

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

ANDREW J. DINKEL.

Witnesses:

H. C. NEWTON,  
E. W. BROWN.