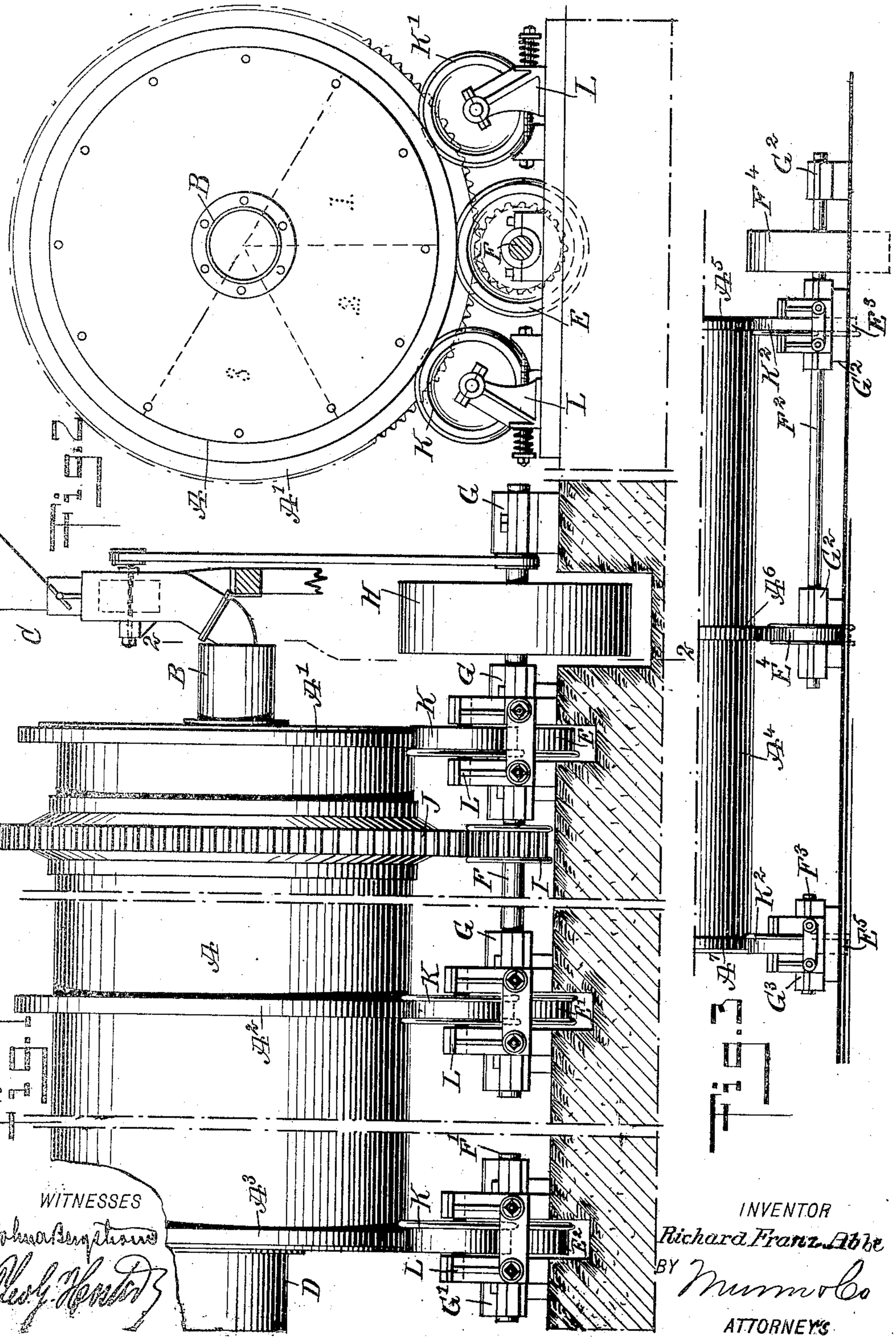
No. 881,171. PATENTED MAR. 10, 1908.

R. F. ABBE.

ROTATING DRUM.

APPLICATION FILED JULY 17, 1906.



UNITED STATES PATENT OFFICE.

RICHARD FRANZ ABBÉ, OF HOBOKEN, NEW JERSEY, ASSIGNOR TO J. R. ALSING ENGINEERING CO., OF NEW YORK, N. Y., A CORPORATION.

ROTATING DRUM.

No. 881,171. Specification of Letters Patent. Patented March 10, 1908.

Application filed July 17, 1906. Serial No. 326,604.

To all whom it may concern:

Be it known that I, RICHARD FRANZ ABBÉ, a citizen of the United States, and a resident of Hoboken, in the county of Hudson and State of New Jersey, have invented new and useful Improvements in Rotating Drums, of which the following is a full, clear, and exact description.

The object of the invention is to provide certain new and useful improvements in rotating drums, whereby the drum and its load is centrally supported and driven, to permit easy running of the drum with a minimum expenditure of power especially when starting up the drum.

The invention consists of novel features and parts and combinations of the same, which will be more fully described hereinafter and then pointed out in the claims.

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 side elevation of my invention; Fig. 2 is a transverse section of the same on the line 2—2 of Fig. 1, and Fig. 3 is a side elevation of a modified form of the improvement.

In ore roasting, grinding, mixing and other drums as heretofore constructed, considerable power is required, to start the drum when loaded. In order to simplify the mounting of the drum and to insure an easy starting up and running of the machine, the arrangement presently to be described in detail is provided.

The drum A is provided centrally at one end with a suitable inlet B connected with a feeding device C of any approved construction, and the other end of the drum A is provided with a central outlet D. The drum A is provided on its periphery with external annular bearings A′, A^2 and A^3, of which the bearings A′, A^3 are preferably located at or near the ends of the drum, while the bearing A^2 is located approximately at the middle of the drum. The bearings A′, A^2 and A^3 engage at their bottoms the peripheral faces of supporting wheels E, E′, E^2, of which the supporting wheels E and E′ are mounted loosely on the shaft F journaled in suitable bearings G, while the supporting wheel E^2 has a similar shaft F′, journaled in suitable bearings G′. The shafts F and F′, however, are in axial alinement with each other, the axes being located in a vertical plane passing through the axis of the drum A, as will be readily understood by reference to Fig. 2. By the arrangement described the drum A and its contents is centrally supported on the supporting wheels E, E′ and E^2.

On the shaft F is secured a pulley H connected by belt with other machinery, for imparting a rotary motion to the shaft F, but it is evident that other suitable driving means may be employed for rotating the shaft F. On the shaft F and preferably adjacent to the supporting wheel E is secured a pinion I in mesh with a gear wheel J fixed on the drum A, so that when the shaft F is rotated a rotary motion is transmitted to the drum A by the pinion I and the gear wheel J.

In order to hold the drum A centrally on the supporting wheels E, E′, E^2, sets of guide rollers K, K′ are provided, arranged on opposite sides of the supporting wheels E, E′, E^2 and preferably in transverse alinement with the said wheels and in peripheral contact with the bearings A′, A^2 and A^3. The guide rollers K, K′ are journaled in transversely adjustable bearings L, as indicated in Fig. 2.

In the modified form shown in Fig. 3, the drum A^4 is provided with the annular bearings A^5, A^6 and A^7 in peripheral engagement with the supporting wheels E^3, E^4 and E^5, of which the supporting wheels E^3, E^4 are secured on the driven shaft F^2 journaled in suitable bearings G^2, while the supporting wheel E^5 has its shaft F^3 journaled in a separate bearing G^3. The shaft F^2 is provided with a pulley F^4 or other means connected with other machinery for imparting a rotary motion to the shaft F^2, to rotate the supporting wheels E^2, E^3, so that the latter not only support the drum A^4 but also form the driven means for the same. The drum A^4 is also engaged by guide rollers K^2 arranged in sets, the same as the guide rollers K and K′ above referred to, so that further description of the same is not deemed necessary, it being understood, however, that the said guide rollers K^2 engage the bearings A^5, A^6 and A^7 on opposite sides of the supporting wheels E^3, E^4 and E^5.

By the arrangement shown and described the mounting of the drum is considerably simplified, and an easy starting and rotating of the drum is had by supporting the drum centrally at the bottom on supporting wheels

and merely using the rollers K, K′, K² as guide rollers to keep the drum centrally in position over the supporting wheels E, E′, E² and E³, E⁴, E⁵ respectively. Now, assuming that the load in the drum A consists of the sections 1, 2, 3, as indicated in dotted lines in Fig. 2, it will be noticed that the sections 1 and 2 counterbalance each other relative to the supporting wheels E and it is only necessary to use sufficient power to lift the section 3, which is approximately equal to each of the sections 1 and 2. In the machines as heretofore constructed it was necessary to employ a sufficient power to lift the entire load composed of sections 1, 2 and 3.

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

1. A device of the character described comprising a drum having external annular bearings, one located approximately at the middle of the drum and the others located at or near the ends of the drum, a gear wheel fixed on the said drum, adjacent to one of the end bearings, a driven shaft extending beneath one end of the drum and located in a vertical plane passing through the axis of the drum, supporting wheels mounted on said shaft and in frictional engagement respectively with the annular bearing at one end of the drum and the middle bearing, a pinion secured to said shaft between the said supporting wheels and in mesh with the gear wheel on the drum, a second shaft extending beneath the other end of said drum and in axial alinement with the said driven shaft, a supporting wheel loosely mounted on said second shaft and in engagement with the bearing at said end of the drum, guide rollers peripherally engaging the said bearings of the drum and located on opposite sides of the said supporting wheels.

2. The combination with a drum having a central inlet at one end and a central outlet at the other end, a feeding device leading to said inlet, supporting wheels engaging the drum peripherally at the bottom of the drum, a driven shaft extending beneath one end of the drum and on which sundry of said supporting wheels are mounted, a driving pulley secured on said shaft, a second shaft extending beneath the other end of said drum and in axial alinement with the said driven shaft, a supporting wheel for the drum loosely mounted on said second shaft, guide rollers engaging the drum on opposite sides of the said supporting wheels, and in transverse alinement therewith, and transversely adjustable bearings in which said guide rollers are mounted.

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

RICHARD FRANZ ABBÉ.

Witnesses:

THEO. G. HOSTER,

EVERARD B. MARSHALL.