C. J. BEST.

TRITURATING AND REDUCING MILL.

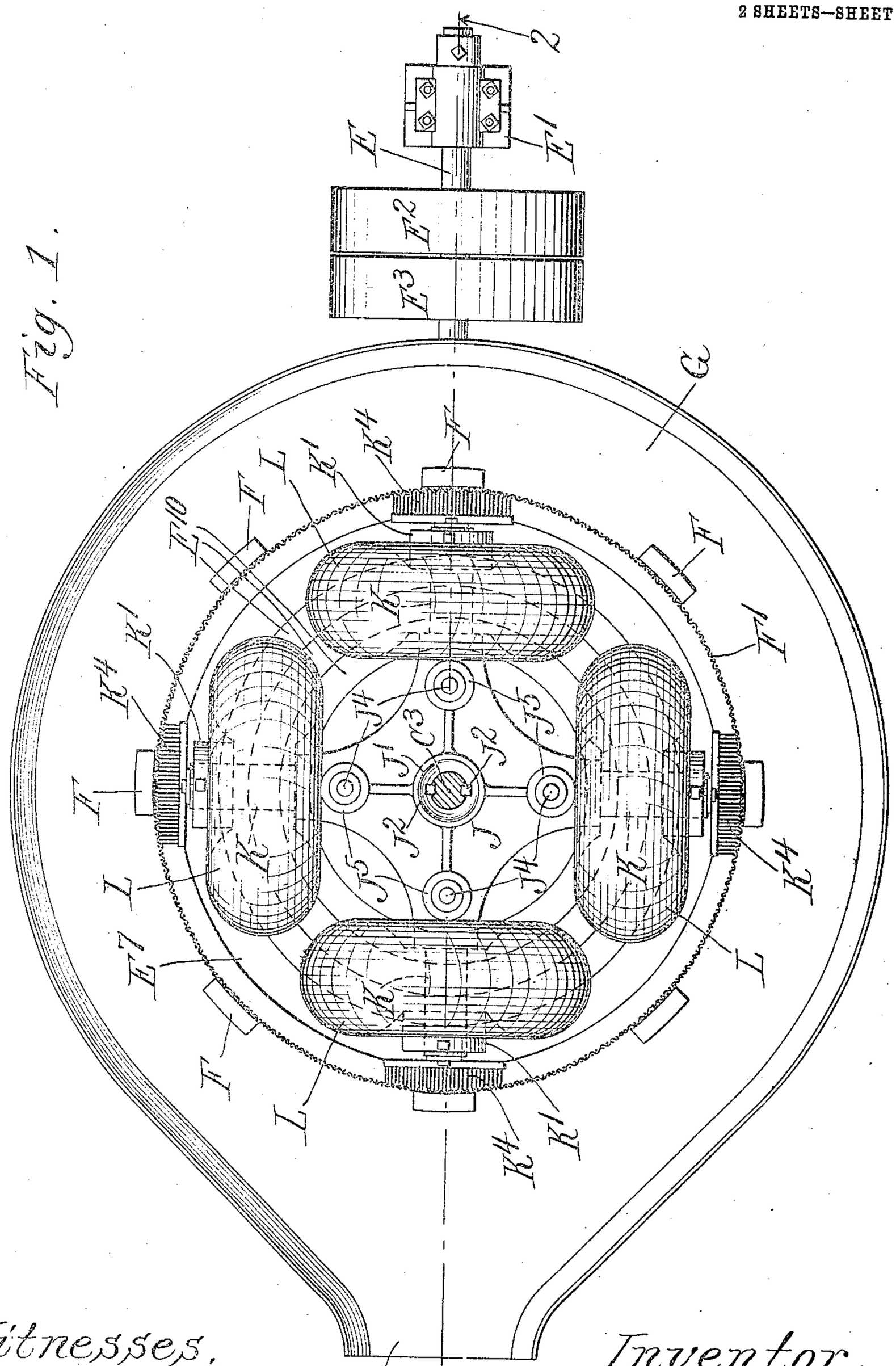
APPLICATION FILED AUG. 1, 1908.

936,079.

Patented Oct. 5, 1909.

2 SHEETS—SHEET 1.

Fig. 1.



Witnesses.
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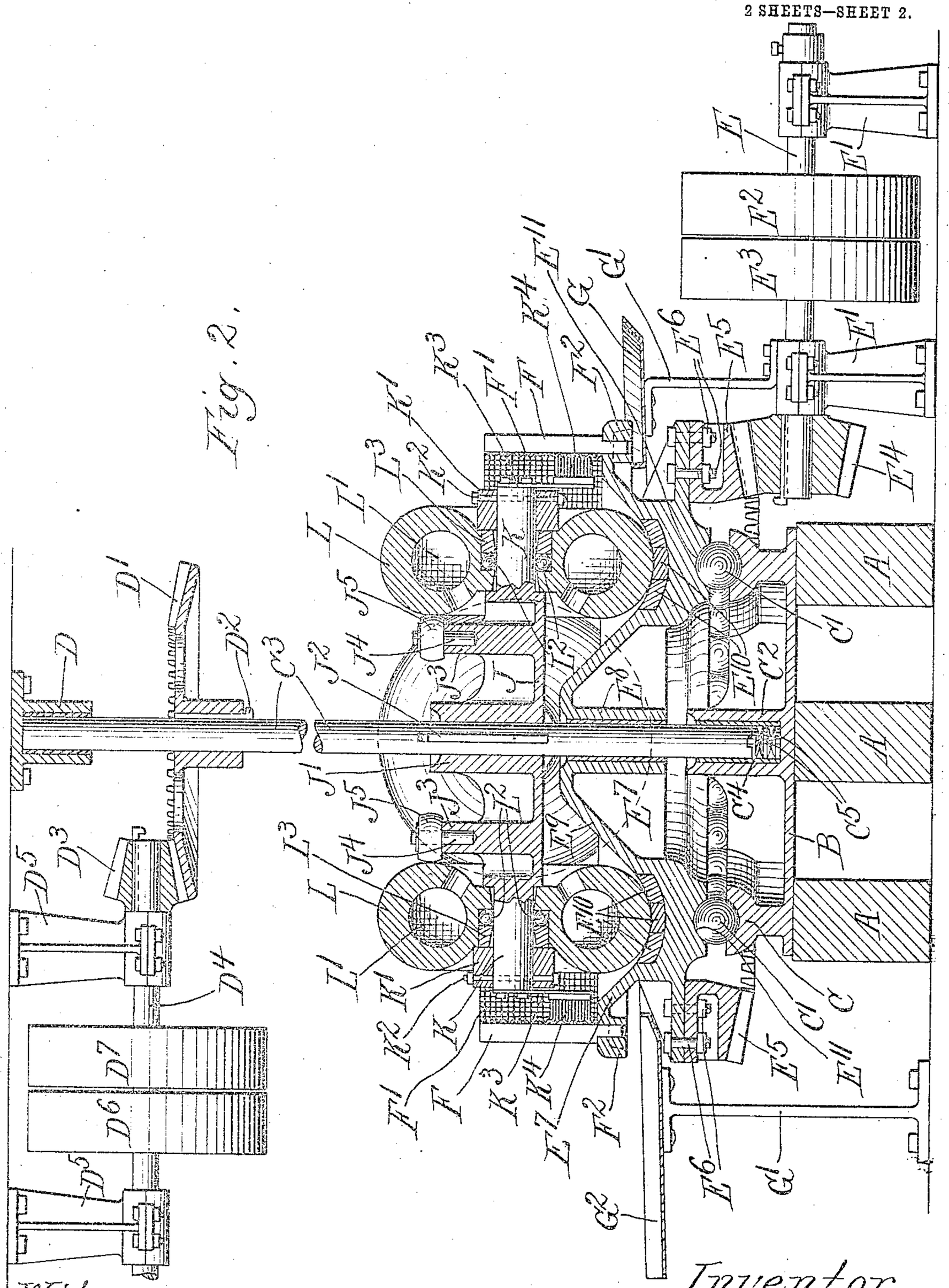
2 SHEETS—SHEET 2.

Fig. 2.



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UNITED STATES PATENT OFFICE.

CHARLES J. BEST, OF OAKLAND, CALIFORNIA.

TRITURATING AND REDUCING MILL.

936,079. Specification of Letters Patent. Patented Oct. 5, 1909.

Application filed August 1, 1908. Serial No. 446,375.

To all whom it may concern:

Be it known that I, CHARLES J. BEST, a citizen of the United States, residing at Oakland, in the county of Alameda and State of California, have invented a certain new and useful Improvement in Triturating and Reducing Mills, of which the following is a specification.

My invention relates to reducing mills and has for its object to provide certain new and useful mechanism in devices of this kind.

It is illustrated in the accompanying drawings wherein—

Figure 1 is a plan view of a mill with the driving mechansim above removed; Fig 2 is a vertical section on line 2—2 of Fig. 1.

Like parts are indicated by the same letter in all the figures.

A A are supports on which the base piece B rests. This latter is provided with an upwardly extending grooved supporting ring C in which run the balls C^1 and it is also provided with an upwardly extending socket C^2 in which rests the driving shaft C^3. The latter is rounded at its lower end C^4 and hardened and supported on bronze washers C^5. The driving shaft is received into a socket D and it carries a beveled gear D^1 secured to it by means of the key D^2. This bevel gear meshes with the pinion D^3 on the shaft D^4 supported by the hangers D^5 D^5 and supplied with the fast and loose pulleys D^6 D^7.

E is a short shaft supported on standards E^1 E^1 and carrying the fast and loose pulleys E^2, E^3 and at its outer end the beveled pinion E^4 which meshes with the bevel gear E^5 which is bolted at E^6 E^6 to the pan E^7 which comprises a central sleeve E^8 surrounding the shaft C^3, a cone shaped extension E^9 connected with such sleeve, a groove like surface composed of the removable lining rings E^{10} E^{10} and the lower groove E^{11} whereby it rests on the balls C^1 C^1. On the outer rim of this pan are raised cleats F F whereby the circular sieve F^1 is supported. The outer rim of the pan is downwardly turned at F^2 to give delivery to the annular trough G which is independently and fixedly supported on the standards G^1 G^1 which are in turn made fast to some fixed portion of the building or apparatus. The trough is inclined and lies immediately under the outside rim of the pan and is provided at its lowest side with the discharge chute G^2.

J is a plate having the central sleeve J^1 which receives the shaft C^3 and to which it is secured by the feather J^2. Rising from this plate are a series of short standards J^3 each provided with an opening in its upper end to receive the shaft J^4 of an idler roller J^5. Projecting outwardly from the plate J are the short shafts K K each provided at its outer extremity with the collar K^1 secured in position by the transverse bolt K^2 and each provided with a downwardly depending finger K^3 at its outer end. To each of these fingers is attached a brush K^4. These brushes brush the inside of the sieve.

L L are wheels each hollowed at L^1 and thicker on its outer than on its inner side. Each of these wheels is supported by means of the balls L^2. These balls are held in position in a kind of raceway by the collars L^3.

I have not shown the chutes for supplying the material underneath the crushing wheels nor the pipe for supplying water. Either can be arranged or disposed of as may be desired. By having the crushing wheels hollow it is obvious that they may be more or less filled to vary their effective weight. I have shown the parts in an operative structure and yet they can be greatly varied without departing from the spirit of my invention and some of the elements shown might be dispensed with and others substituted for them.

The use and operation of my invention are as follows: The material to be crushed or pulverized is fed in a proper stream into the pan where it will most conveniently run under the crushing wheels into the groove or depression in the pan. This pan is kept in rotation by means of the short shaft E and its pinion which meshes with the gear on the bottom of the pan. The crushing wheels being mounted on the plate J are driven by the shaft C^3 and are made to travel in the opposite direction. Thus with a comparatively low speed a relatively high effective speed of rotation is secured. As the material is crushed or powdered or pulverized the effect of the rotating bodies is to throw it outwardly where the finer portions pass through the sieve out into the trough and are carired away to the storing receptacle. The brushes on the upper rotating crushing wheel frame serve to keep the meshes of the sieve free.

I claim:

In a reducing mill, the combination of

a frame having an outer grooved support and an inner socket, with a rotatable crushing pan having a central sleeve surrounding a shaft, a trough containing removable bottom sections, a screen surrounding the edge of the trough and secured thereto, and a driving mechanism to rotate the pan in a given direction, balls on which the pan is supported, in the grooved support of the frame, a receiving trough which surrounds and underlies the edge of the pan, a crushing frame consisting of laterally projecting arms, and a sleeve whereby it is feathered on the shaft, hollow wheels mounted on the arms and adapted to travel in the trough of the pan, arms upwardly projecting from the arms of the crushing frame, idlers thereon bearing against the inner upper portion of the rotating crusher wheels, and overhead driving mechanism whereby the shaft is driven in a direction opposite to that of the pan.

CHARLES J. BEST.

Witnesses:
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