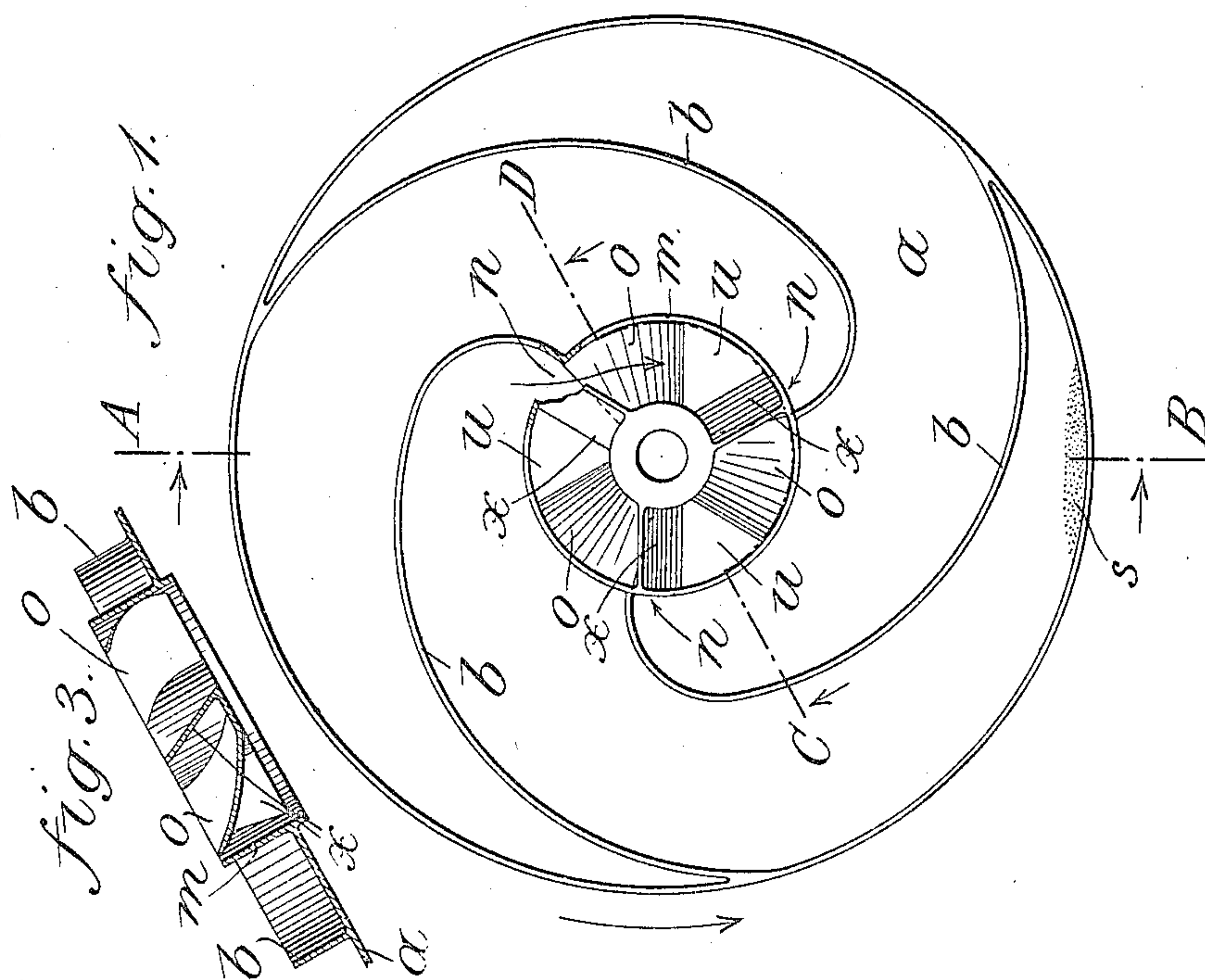
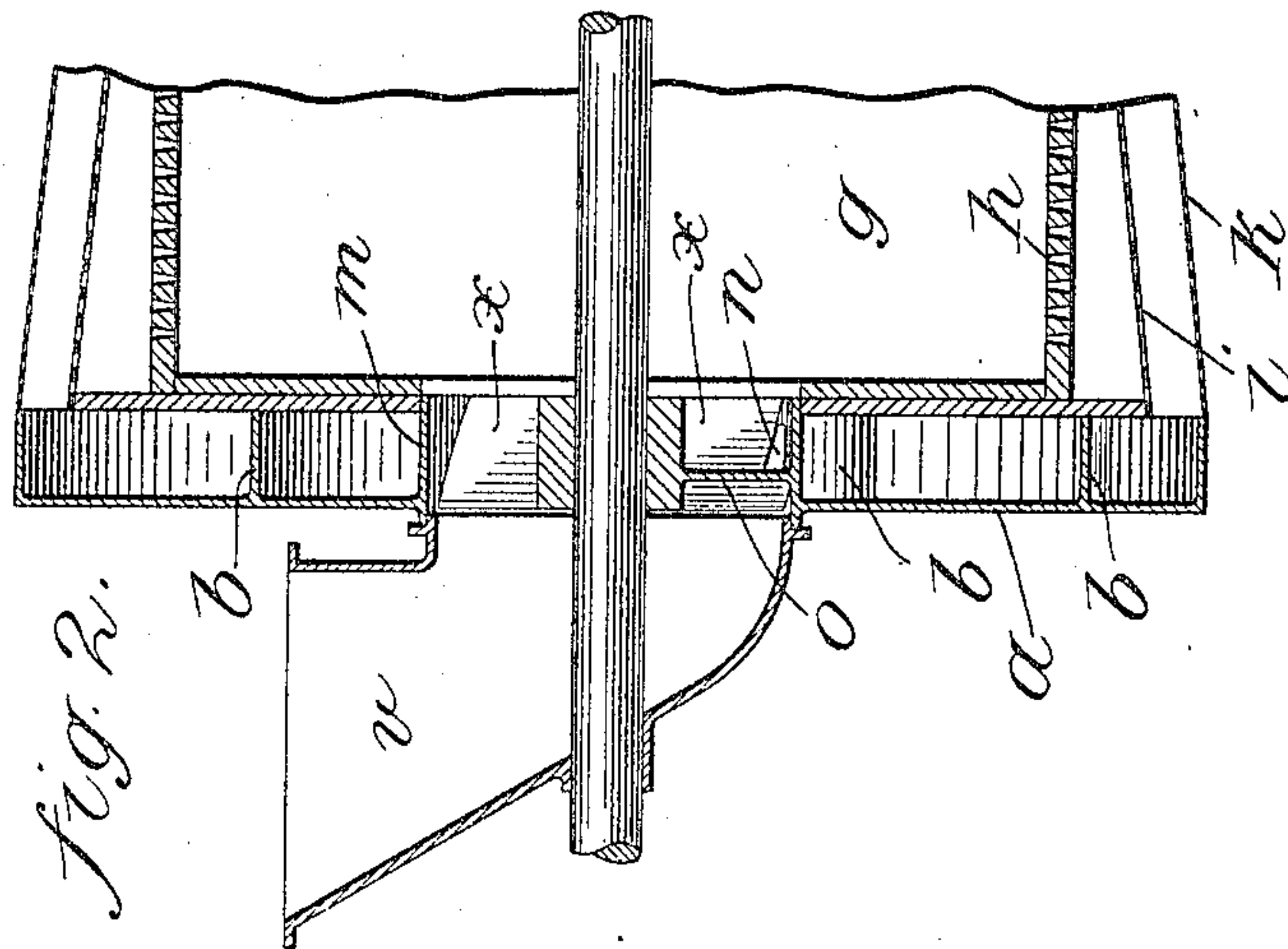


No. 813,076.

PATENTED FEB. 20, 1906.

R. BENEKE.  
DRUM MILL.

APPLICATION FILED JAN. 18, 1905.



Witnesses  
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# UNITED STATES PATENT OFFICE.

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## DRUM-MILL.

No. 813,076.

Specification of Letters Patent.

Patented Feb. 20, 1906.

Application filed January 18, 1905. Serial No. 241,607.

*To all whom it may concern:*

Be it known that I, RICHARD BENEKE, director, a subject of the King of Prussia, German Emperor, residing at No. 6 Bahnhofstrasse, Bromberg, German Empire, have invented new and useful Improvements in Drum-Mills, of which the following is a specification.

My invention relates to an improved boss for drum-mills, the purpose of which is to admit of material not passing through the sieve being returned to the grinding-drum and at the same time to allow of new material being fed to the drum.

One embodiment of the invention is shown in the accompanying drawings, in which—

Figure 1 is an inside view of the apparatus; Fig. 2, a section on the line A B of Fig. 1, and Fig. 3 a section on the line C D of Fig. 1.

The material falling out of the grinding-drum *g* through the apertures *h* descends upon the two perforated shells or sieves *i* and *k* in the ordinary manner. The coarse material remains lying on the sieve *k* and passes into the casing *a*, as shown at *s*. Here the blades *b* scoop it up and return it through the boss into the interior of the grinding-drum again. In order to admit this coarse material to travel unimpeded by the shortest path into the grinding-drum, the rim *m* of the boss, which is open laterally, is provided with apertures *n*, corresponding in number with the number of blades *b*, and through these apertures the material lying on each blade passes unobstructed. The material falls upon that one of a series of wings or vanes *o* which lies opposite the aperture *n* which is uppermost for the time being. These vanes *o* have a spiral curve and may be regarded as extensions of the blades *b*. Since the boss, as Fig. 3 shows, is open at the side toward the interior of the grinding-drum and since the vanes *o* travel against the direction of fall of the material *s*, the latter immediately a blade *b* discharges its contents slides through the boss and falls unimpeded by the shortest path from the vane *o*. In this manner the material is returned to the grinding-drum in a continuous stream, no shocks being occasioned.

In order to enable fresh material to be fed

through the boss into the grinding-drum, the partition on the outer side of the drum presents inlets *u u u*, Fig. 1, and a hopper *v* is secured to the boss at this side. The charge falling through the hopper passes through the apertures *u* into the interior of the drum *g*. To prevent the fresh charge entering the inlets *n* of the boss-rim, scoop-shaped partitions *x* may be located between the vanes *o*, which partitions, owing to their inclined position in rotating, convey the charge of fresh material from the hopper *v* into the grinding-drum. Thus it will be seen that the boss comprises two sets of channels—one set communicating with the tailings-return ribs *b* and the other with the hopper discharge-opening.

Instead of partitions *x* it is obvious that any other suitable means may be employed to prevent the fresh charge entering the apertures in the rim *m* of the boss. Thus, for example, covers might be used, fitted so as not to obstruct the free exit of the coarse material.

Having thus described my invention, what I claim is—

1. In a drum-mill having a casing at the drum end, communicating with the outer shell of the drum, and presenting blades running from the periphery toward the center; in combination, a central boss for the drum-shaft, having a perforated rim, communicating peripherally with the casing and laterally with the grinding-drum; spirally-curved vanes in the interior of the boss, rotating against the direction of fall of material through the perforated rim, located one below each aperture in the latter; a perforated partition dividing the hopper from the boss; and means for preventing the hopper charge from passing through the perforated boss-rim, substantially as described.

2. In a drum-mill having a casing at the drum end, communicating with the outer shell of the drum, and presenting blades running from the periphery toward the center; in combination, a central boss for the drum-shaft, having a perforated rim, communicating peripherally with the casing and laterally with the grinding-drum; spirally-curved vanes in the interior of the boss, rotating against the direction of fall of material

through the perforated rim, located one below each aperture in the latter; a perforated partition dividing the hopper from the boss; and scoop-shaped members located between  
5 the said vanes, for preventing the hopper charge from passing through the perforated boss-rim, substantially as described.

In witness whereof I have hereunto signed my name, this 21st day of December, 1904, in the presence of two subscribing witnesses.  
RICHARD BENEKE.

Witnesses:

WOLDEMAR HAUPT,  
HENRY HASPER.