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3,129,897

ROLLER MILLS FOR GRINDING CEREAL PRODUCTS

Filed June 11, 1962

2 Sheets-Sheet 1

Fig. 1.

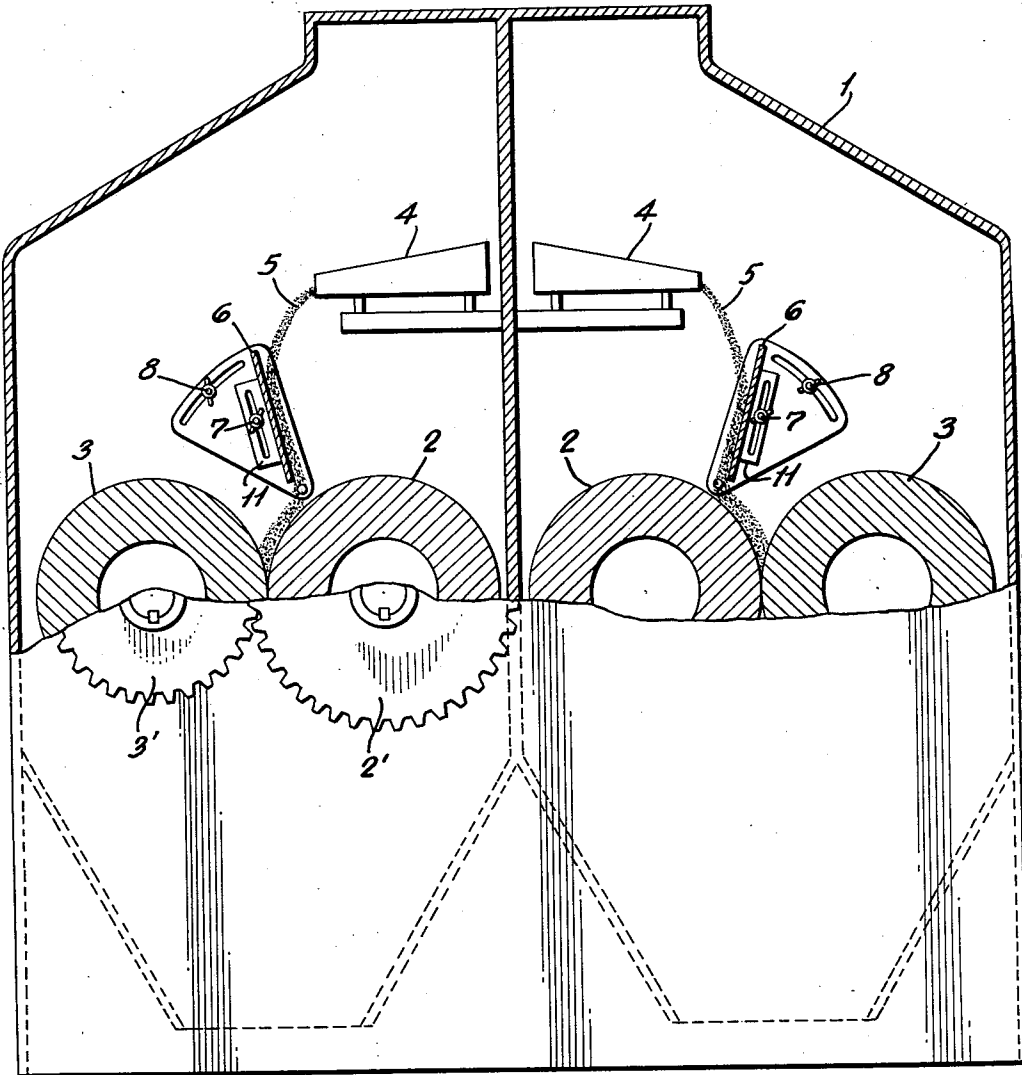


Fig. 3.

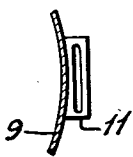
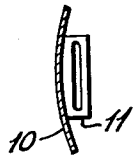


Fig. 4.



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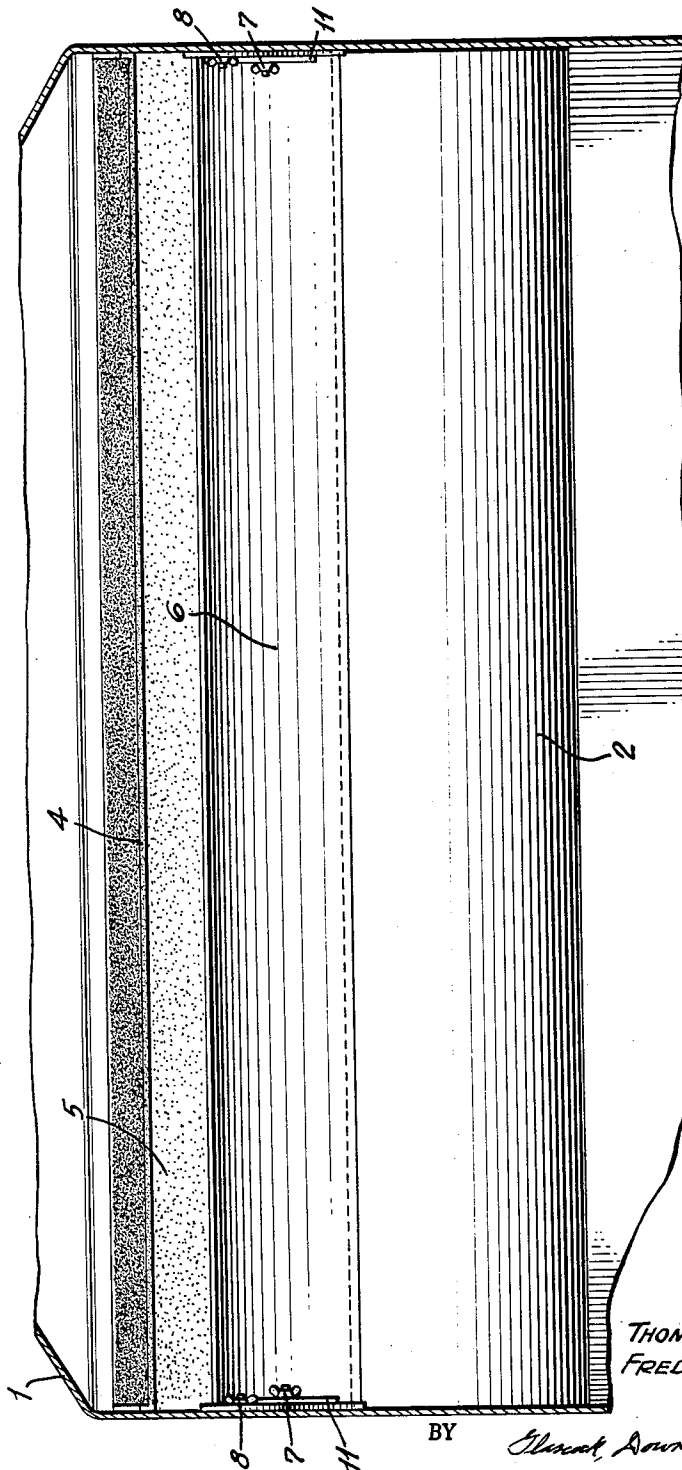
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Fig. 3.



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ROLLER MILLS FOR GRINDING CEREAL PRODUCTS

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Claims priority, application Great Britain June 30, 1961
5 Claims. (Cl. 241—143)

This invention relates to roller mills for grinding cereal products or the like and particularly to the feeding of materials to be ground in roller mills wherein the grinding rolls are mounted on a common substantially horizontal plane, and has for its object to provide material feed control means whereby the flour producing efficiency of the grinding process is increased.

According to the present invention there is provided a roller mill for grinding cereal products or the like comprising a pair of parallel grinding rolls mounted on a common substantially horizontal plane, roll driving means whereby one roll rotates at a faster peripheral speed than the other, feeding means whereby material to be ground is fed to the rolls as a continuous curtain of constant density, and deflector means arranged to intercept the falling curtain of material and re-direct it in the form of a continuous layer of constant density to the surface of one of the grinding rolls at a position which is parallel to and rotationally in advance of the nip of the rolls by an amount in the angular range between 10° and 42°.

Preferably, the deflector means is a plate which is mounted in such a manner that the proximity of its lower end to the grinding roll surface and its angle relative to the falling curtain of material from the feeding means may be adjusted at will to an optimum state for the grinding conditions applying.

An embodiment of the invention will now be described, by way of example, with reference to the accompanying drawing in which:

FIG. 1 shows a sectional side elevation of a roller mill, FIG. 2 is a sectional front view of a part of the roller mill shown in FIG. 1,

FIG. 3 shows a concave deflector plate for use with the roller mill, and

FIG. 4 shows a convex deflector plate for use with the roller mill.

Referring to the drawing a roller mill comprises a housing 1 within which is mounted on framework (not shown) a pair of parallel grinding rolls 2, 3. The rolls 2, 3 are mounted on a common substantially horizontal plane and are driven through gearing 2' and 3' by means of which one roll 3 rotates at a faster peripheral speed than the other roll 2. Mounted above the rolls 2, 3 is a feedbox 4 from which material 5 to be ground is fed downwardly to the grinding rolls 2, 3, the material 5 falling as a continuous curtain of constant density extending over the full length of the rolls. A deflector plate 6 is located over the rolls 2 and 3 and extends over the full length of the rolls, the purpose of the deflector plate 6 being to intercept the falling curtain of material 5 and to redirect it in the form of a continuous layer of constant density on to the surface of one of the grinding rolls at a position which

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is parallel to and rotationally in advance of the nip of the rolls 2 and 3 by an amount in the angular range between 10° and 42°. The deflector plate 6 is mounted on the framework by adjusting screws 7 and 8 whereby position of the deflector plate 6 can be altered so that the proximity of its lower end to the grinding roll surface and its angle relative to the falling curtain of material 5 from the feedbox 4 respectively can be adjusted at will to an optimum state for the grinding conditions applying.

By the employment of a deflector plate 6 as described above which is adjusted to the optimum condition for the circumstances applying, we have, for a given output rate of flour from a given input rate of flour producing material, reduced the horsepower requirements of the process to substantially one third of that required when the curtain of material is allowed to fall directly into the nip of the rolls.

The surface of the deflector plate 6 which is presented to the falling curtain of material 5 need not be flat as shown in the drawing but can be curved at right angles to its length to offer a concave surface 9 as illustrated in FIG. 3 or a convex surface 10 as illustrated in FIG. 4. Alternatively attachment means 11 can be incorporated whereby deflector plates presenting differing surface shapes can be readily interchanged.

What we claim is:

1. A roller mill for grinding cereal products or the like comprising a pair of parallel grinding rolls mounted on a common substantially horizontal plane, roll driving means whereby one roll rotates at a faster peripheral speed than the other, feeding means whereby material to be ground is fed to the rolls as a continuous curtain of constant density, and deflector means arranged to intercept the falling curtain of material and re-direct it in the form of a continuous layer of constant density to the surface of one of the grinding rolls at a position which is parallel to and rotationally in advance of the nip of the rolls by an amount in the angular range between 10° and 42°.

2. A roller mill as claimed in claim 1, in which the deflector means is a plate which is adjustably mounted above the rolls in such a manner that the proximity of its lower end to the grinding roll surface and its angle relative to the falling curtain of material can be adjusted at will to an optimum state for the grinding conditions applying.

3. A roller mill as claimed in claim 1, in which the material to be ground is fed as a continuous curtain of constant density extending over the full length of the rolls, the deflector means also extending over said full length.

4. A roller mill as claimed in claim 2, in which the deflector plate is curved at right angles to its length to offer a concave or convex surface to the falling curtain of material.

5. A roller mill as claimed in claim 2, in which the deflector plate is mounted so as to be interchangeable with other plates which present differing surface shapes to the falling curtain of material which is deflected thereby.

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