Feb. 23, 1965 W. F. KOLTS ETAL 3,170,640

HAMMERMILL SCREEN

Filed June 4, 1963

Fig. 1.

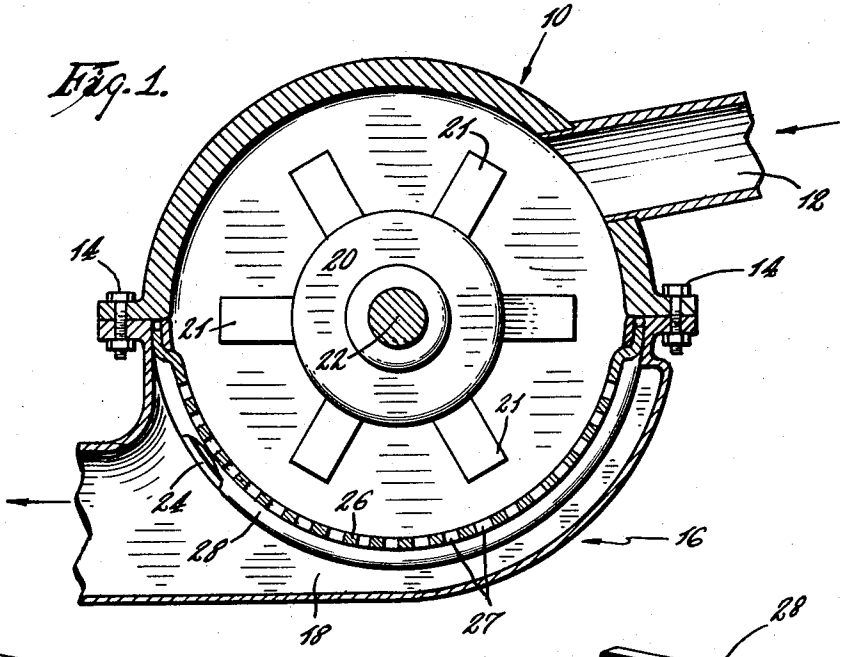


Fig. 2.

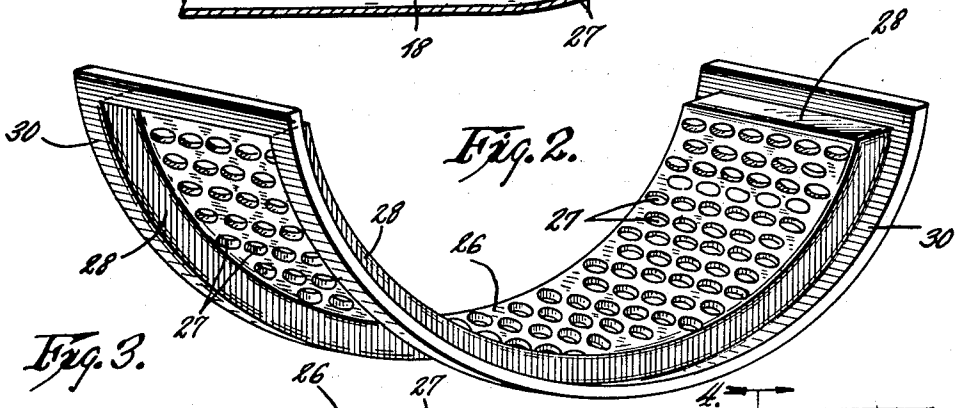


Fig. 3.

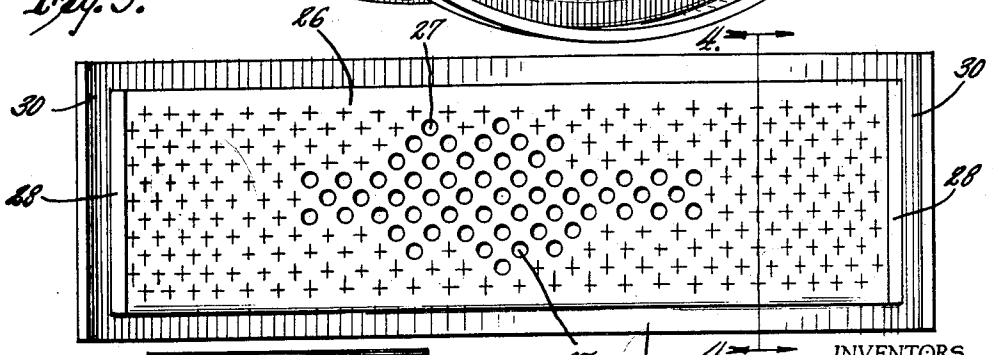
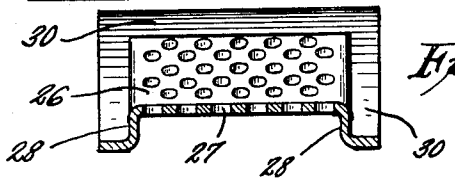


Fig. 4.



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HAMMERMILL SCREEN

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1 Claim. (Cl. 241—86)

This invention relates to a screen for hammermills, and has for its object the provision of a screen which can be used in different forms of conventional hammermills, which will provide a control for the distance between the mill rotor and the perforated screen section, which will provide such control without any substantial reduction in the area of said perforated section, and which can be economically manufactured from inexpensive sheet-metal.

According to one form of our invention, there is provided an arcuate screen having a centrally disposed perforated section. Said perforated section is rigidly interconnected at its outer edges to a border which projects longitudinally and laterally outwardly from said perforated section for reception in locating supports in a conventional hammermill base for mounting the screen thereon. The perforated section and border lie in parallel offset planes for thus disposing said perforated section at a controlled distance from the rotors of the hammermill in which the screen is mounted.

Other objects and features of our invention will become apparent from the more detailed description which follows and from the accompanying drawing, in which:

FIG. 1 is a vertical section of a mill having a screen embodying our invention mounted therein;

FIG. 2 is an isometric view of the screen shown in FIG. 1;

FIG. 3 is a plan view view of the screen shown in FIG. 1; and

FIG. 4 is a vertical section taken on the line 4—4 of FIG. 3.

Our screen is adapted to be used in a conventional hammermill which, as shown in FIG. 1, may comprise an upper semi-cylindrical housing **10** provided with an inlet **12** and connected, as by bolts **14**, to a lower semi-cylindrical housing **16** provided with an outlet duct **18**. A rotor **20** provided with a plurality of radially projecting heads **21** is carried within the mill housing **10** and **16** on a drive shaft **22**. The opposed side walls of the lower housing **16** of the hammermill shown have semi-circular grooves **24** formed therein for the reception of a screen which acts in combination with the rotor heads **21** for grinding the material entering the mill through the duct **12**. Other mills may have other forms of screen supports.

A conventional hammermill screen, while arcuate in its overall configuration, is planar throughout its extent, so that when its lateral edges are received in the grooves **24**, it lies in the arcuate plans of said grooves and is

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thus separated from the rotor heads **21** by the radial distance between the grooves **24** and the outer circumference of the heads **21**. In the grinding of various grains, however it is desirable to vary the spacing between the rotor heads **21** and the screen mounted in the mill grooves **24**. It is also desirable to be able to change the grinding capacity of the mill by varying the distance between the rotor heads **21** and the screen carried in the grooves **24**.

Our invention permits the adjustment of the distance between the rotor heads **21** and the perforated section of the screen carried in the grooves **24**. To this end, our screen comprises a generally rectangular arcuate section **26** having a plurality of openings **27** formed therein. A radially projecting imperforate web **28** extends around the periphery of the perforated section **26** and is connected to an imperforate border **30** which projects laterally and longitudinally outwardly beyond the extent of the perforated section **26**. As shown, the border **30** is also rectangular in form and lies in an arcuate plane offset from and parallel with the arcuate plane of the perforated section **26**. Said border has an arcuate extent of about 180°, and the perforated section **26** has an arcuate extent slightly less than the arcuate extent of the border **30**.

In the embodiment of our invention illustrated in the drawing, the lateral edges of the border **30** are inserted into the mill housing grooves **24** until the screen is properly oriented in the mill. With the perforated section **26** being disposed radially inwardly from the border **30**, said perforated section will be disposed toward the rotor heads **21** out of the plane of the mill housing grooves **24**, the amount of displacement of the perforated section **26** being a function of the radial extent of the web **28**. It is to be understood, of course, that our invention also contemplates the perforated section **26** projecting radially outwardly from the border **30**, in which event said perforated section would lie in a plane displaced farther away from the rotor heads **21** than the plane of the mill grooves **24**.

We claim:

A screen for a hammermill, comprising an arcuate sheet of metal having a centrally disposed perforated section, an imperforate peripheral border extending laterally and longitudinally outwardly from said perforated section and radially offset out of the plane thereof, and a radially extending imperforate web interconnecting the outer edge of said perforated section and the inner edge of said border and retaining said perforated section and border in their offset relationship.

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