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A. W. BOND
MILL SCREEN WITH AUXILIARY PERFORATE
BAFFLES ON OPERATING FACE
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Fig. 1.

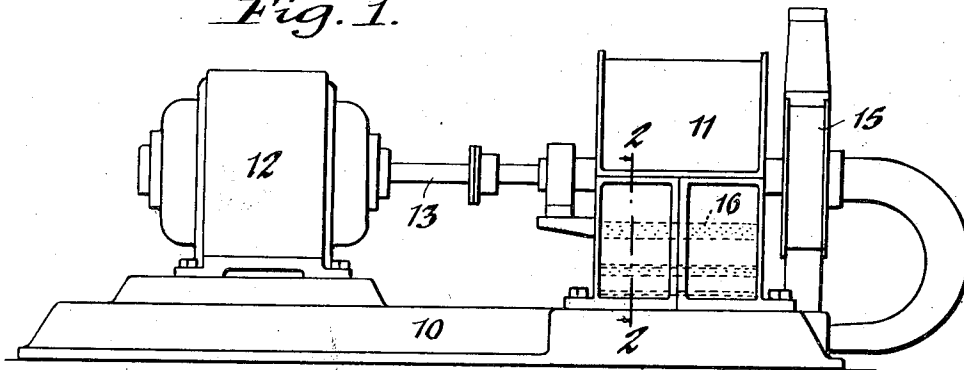


Fig. 2.

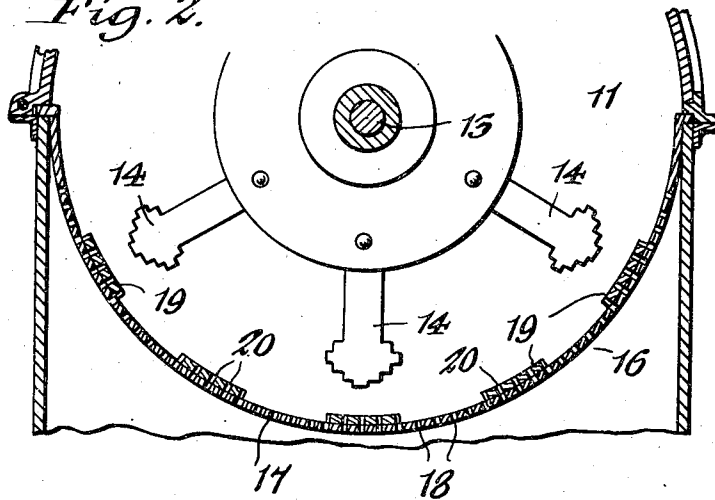


Fig. 3.

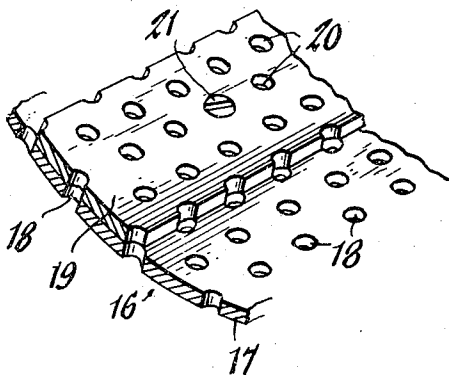
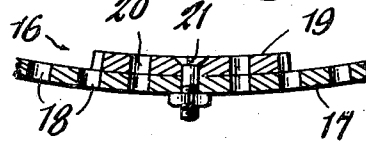


Fig. 4.



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UNITED STATES PATENT OFFICE

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MILL SCREEN WITH AUXILIARY PERFORATE BAFFLES ON OPERATING FACE

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4 Claims. (Cl. 241—88)

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This invention relates generally to improvements in hammer mills of the type used for grinding feed, but more particularly to a screen for such mills.

It has for one of its objects to provide a novel screen structure for mills of this character which is so designed and constructed as to increase the grinding character as well as the capacity or output of the mill to a maximum.

Another object of the invention is to provide a screen of this character having a main perforated section and auxiliary perforated sections mounted on the inner or operating face of the main section in spaced, circumferential relation to one another with the perforations thereof in register with those in the overlying or contiguous portions of the main screen section so as not to interfere with or reduce the screen area thereof.

A further object is to provide a laminated screen for hammer mills whose inner surface is composed of screen-forming bars disposed in predetermined relation which function in cooperation with the hammers to effectually reduce the feed without affecting the screening area and without increasing the power required for operating the mill.

Other features of the invention reside in the construction and arrangement of parts hereinafter described and particularly pointed out in the appended claims.

In the accompanying drawings:

Figure 1 is a side elevation of a hammer mill equipped with my improved screen. Figure 2 is an enlarged fragmentary cross section thereof taken on line 2—2, Figure 1, showing the screen structure. Figure 3 is a fragmentary perspective view of the laminated screen. Figure 4 is a detail fragmentary section showing the manner of connecting the auxiliary screen bars or baffles to the main screen section.

Similar characters of reference indicate corresponding parts throughout the several views.

By way of example, my invention has been shown in connection with a hammer mill of well known construction, 10 indicating its bed plate on one end of which is mounted the mill casing or grinding chamber 11 and on the other end of which is mounted the motor 12. The driving shaft for operating the mill is indicated at 13 and mounted thereon within the grinding chamber are the customary revolving beaters or hammers 14 for grinding the feed or like material fed into the machine. A suction fan 15 is also provided in operative relation to the discharge end of the chamber which is driven from the shaft 13 and

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which functions to withdraw the ground or pulverized material through the screen 16 and direct it into suitable bins.

The screen which is indicated generally by the numeral 16 is fitted in the lower portion of the grinding chamber 11 and is substantially semi-circular in cross section. By preference, this screen is of laminated form to not only effectually screen the material but also so designed as to cooperate with the hammers in reducing the material. It consists of a main section 17 of semi-circular form having perforations 18 of suitable size throughout its screening area and auxiliary sections in the form of perforated bars or baffle members 19 applied to the inner or operating face of the main screening section lengthwise of the mill or parallel to the axis of the hammer-shaft 13 and in spaced circumferential relation to one another. These bars are substantially co-extensive with the main screen section 17 and are of greater width than thickness, as shown, and their perforations 20 are of the same size and located in the same spaced relation as the perforations in the main section. When applied, these bars are so mounted that their perforations register with those in the companion contiguous portions of the main screen section so that the screening area is not affected or in any sense reduced, but fully retained. Furthermore, the bars project into the path of the material being treated in the grinding chamber and serve as baffles to react on the material and repeatedly deflect it into the path of the revolving hammers for further reduction, and its longitudinal edges function as reducing or cutting edges against which the material is impacted by the hammers to thereby supplement the latter in effectually pulverizing the material.

The laminated perforated screen sections are made of steel or like material and the bar-sections 19 are preferably detachably secured to the main section 17 by bolts 21 or like fastenings, whereby such bars may be readily replaced or reversed in their position when those edges thereof opposed to the revolving hammers become worn.

While manifestly simple and inexpensive in construction, this improved screen is very efficient in operation, it increases the capacity of the mill without decreasing its screening surface, and in actual practice has increased the capacity of the mill between two to three times its normal capacity.

I claim as my invention:

1. A machine of the character described, comprising a grinding chamber having a perforated

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deck through which the material is discharged, and combination screen and baffle elements mounted in predetermined spaced relation against the inner face of said deck to provide edges against which the material is impacted and each having screen perforations therein of the same size and in registering relation with companion perforations in the contiguous portion of the deck.

2. A machine of the character described, comprising a grinding chamber, and a laminated screen deck in the lower and adjoining side portions of said chamber, said deck including a main perforated section and auxiliary perforated sections overlying the main section in contiguous relation thereto and in spaced circumferential relation to one another, the perforations in said auxiliary sections being of the same total area as and registering with the companion perforations in the main section.

3. A screen of the character described, comprising a plurality of superposed screen-sections, the lower section being substantially semi-circular and constituting the main portion of the screen and the upper section being composed of baffling members disposed in circumferentially spaced relation and overlying the contiguous screen openings of the main screen section and having the screen-openings therein of the same total area as and in registration with the companion screen-openings in the main section of the screen.

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4. A circular screen for hammer mills, comprising a main screening section of substantially semi-circular shape having rows of perforations therein, and a plurality of combination screen and baffle bars having rows of like perforations therein disposed lengthwise of the main section and secured thereto in circumferentially spaced relation, the baffle bars being of greater width than thickness and having their perforations of the same total area and size as and in register with the perforations in the companion contiguous portions of said main section.

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