May 21, 1929. J. MOLZ 1,714,132

PULVERIZER

Filed June 30, 1923

Fig. 1.

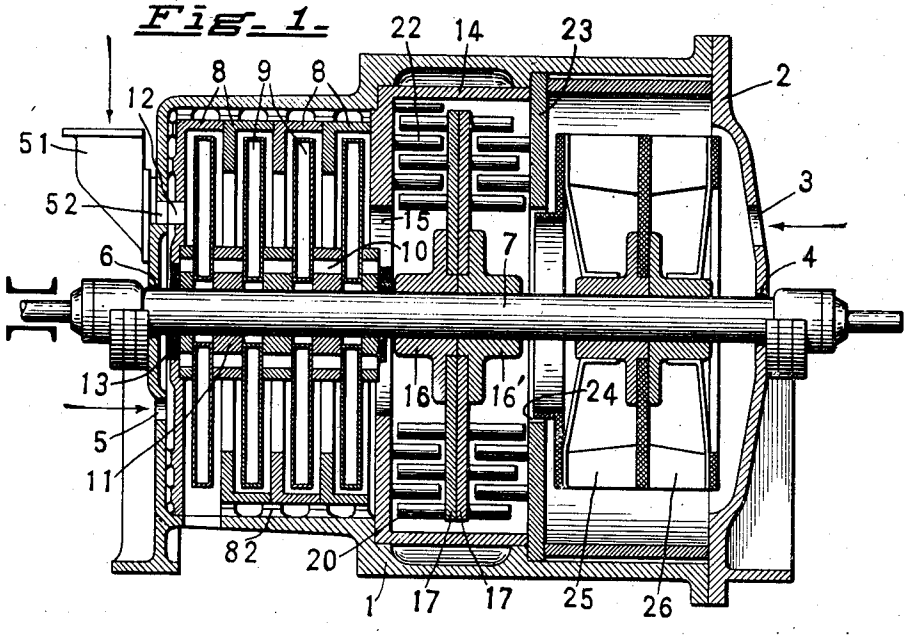


Fig. 2.

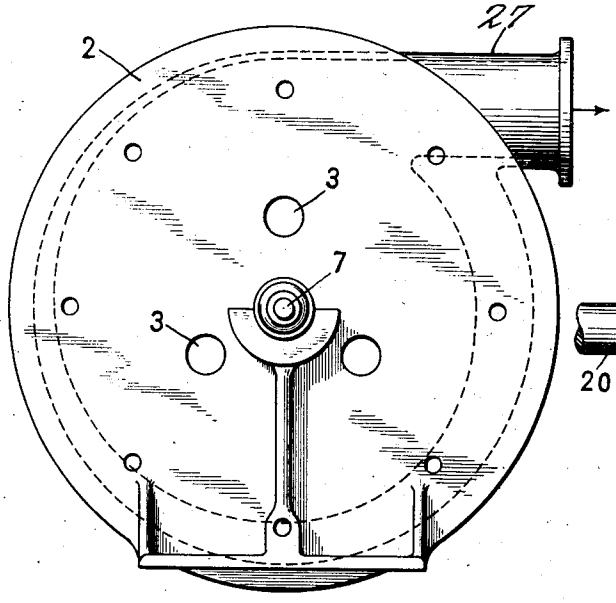
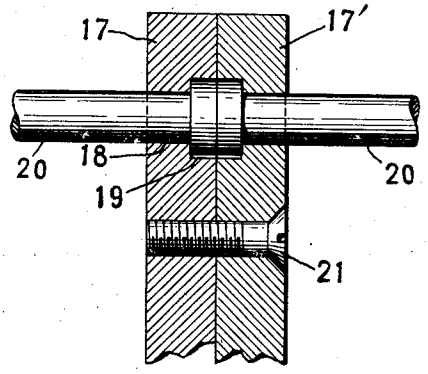


Fig. 3.



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PULVERIZER.

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The present invention relates to improvements in pulverizers for finely dividing coal and other materials and will be best understood from the following description and the annexed drawings, in which like reference characters indicate like parts in the several views, and in which Figure 1 is a vertical cross-section, Fig. 2 is a side view, and Fig. 3 is a detail on a larger scale.

As shown, a casing 1 whose lateral wall is completely closed has an opening at the right-hand end removably closed by means of a cover 2, which is provided with openings 3 for the supply of supplementary air, and an opening 4 through which the shaft 7 of the pulverizing system is introduced. In the left-hand end of the casing are provided air openings 5. Coal, suitably crushed, is fed from hoppers 51 through opening 52 to the pulverizers. Shaft 7 of the pulverizing system projects through an opening 6. In the contracted part of the casing four angle-rings 8 are arranged between which are adapted to move pulverizing blades 9, which are secured by means of bolts inserted in the bored passages 10 in hubs 11 on the shaft 7. The lateral flange of the left angle-ring is constructed as a complete disc and has an opening 12, which is arranged opposite the opening 52 for the supply of coal, and, in addition, a hole 13 through which the shaft 7 passes.

Against the right-hand angle-ring bears a larger angle-ring 14 bounding an annular chamber in one end wall of which is the opening 15. Within the chamber formed by this angle-ring, two discs 17 and 17′ are fastened in a double hub 16, 16′ fixed on the shaft 7. The discs 17, 17′ are provided with openings 18 (Fig. 3) with recesses 19 situated opposite one another. In these recesses are inserted bolts 20, which are, therefore, held firmly in position, the two discs being joined by means of screws 21. These bolts are arranged in concentric rings in the discs. Into the gaps between the annular rows of bolts 20 project bolts 22, which are cast on the lateral flange of the angle-ring 14 and on a disc 23 lying against the open side of the angle-ring 14. The angle-rings mentioned, together with the disc 23, are united together as a unit, e. g., by means of tightening screws (not shown in the drawings), so that they can be removed from the casing 1 with the shaft 7.

In an opening 24 in the disc 23 fits the suction inlet of a fan, the runner 25 of which is mounted on the shaft 7; a second fan runner 26 adjacent the fan runner 25, draws auxiliary air through the openings 3 in the cover 2.

By means of the arrangement described, air is drawn through the openings 5 by the fan 25 and through the openings 3 by the fan 26, so that the two ends connected with the atmosphere are exposed to a partial vacuum and dust cannot escape therethrough. The two fans discharge through a common outlet 27.

The whole pulverizer system can be drawn out of the shell by withdrawing the shaft, and can be replaced by a suitable pulverizing system held in reserve, so that when any disturbance in the pulverizer system takes place, long interruptions in working are avoided, as the change of the pulverizer systems, which are complete in themselves, can be effected in a very short time. The pulverizer system removed can be examined and repaired at leisure.

The whole casing 1 can be rolled and welded from sheet steel, so that any danger due to parts being thrown off by centrifugal force is avoided.

I claim:

1. A pulverizing mill comprising a casing including a pulverizing chamber having pulverizing units therein, said chamber having inlets for air and material to be pulverized, a fan chamber communicating with said pulverizing chamber, a fan therein arranged to draw a mixture of air and finely divided material through said pulverizing chamber and discharge same through a suitable opening and means for subjecting the portion of said fan chamber remote from said pulverizing chamber to sub-atmospheric pressure.

2. A pulverizing mill comprising a casing including a pulverizing chamber having pulverizing units therein, said chamber having inlets for air and material to be pulverized, a fan chamber communicating with said pulverizing chamber, a fan therein arranged to draw a mixture of air and finely divided material through said pulverizing chamber, an exit duct communicating with said fan chamber at the periphery thereof and a second fan in said fan chamber arranged to draw air through holes in the end of said casing remote from said pulverizing chamber.

3. A pulverizing mill comprising a casing, a pulverizer proper, a fan arranged to draw

air through the pulverizer, a second fan arranged to draw air in a direction opposite to that of the air of said fan first mentioned through the end of the casing adjacent thereto, and a common outlet for said fans.

4. A pulverizing mill comprising a casing, a shaft located therein, a plurality of pulverizing units operated thereby, a fan mounted on said shaft for drawing air through said units, a second fan on said shaft having blades of opposite pitch, a partition between the fans, air inlets at each end of the casing, and a common outlet for said fans.

5. A pulverizing mill comprising a casing having a removable end closure and containing a plurality of revoluble blades therein, chambers for said blades composed of individual angle-rings, said rings being united to one another and removable longitudinally of the casing together with the revoluble parts.

6. A pulverizing mill comprising a casing of cylindrical form having a removable end closure, a plurality of pulverizer units placed side by side lengthwise of the casing, each unit comprising a rotary member and a stationary member associated therewith, the stationary members partially enclosing the rotary members and having portions lying parallel to the plane of movement of said rotary members, these stationary members having openings therethrough through which communication may be had from one end of the casing to the other, an inlet at one end of the casing for the admission of material to be pulverized, a fan at the other end of the casing for drawing the material through the pulverizing units, and a common drive shaft for the rotary members and the fan, the stationary members being connected together and these members, the rotary members, and the fan being removable through the open end of the casing.

7. A pulverizing mill comprising a casing of cup shape, a removable end closure, a drive shaft extending through the end of the casing and through the end closure, pulverizer units placed side by side lengthwise of the casing, each unit comprising a stationary member of cup shape and a rotary member driven by the shaft and lying within its associated stationary member, and a fan within the casing near the end closure and communicating with the pulverizer units, the stationary members, the rotary members, and the fan being removable bodily through the open end of the casing upon removal of the end closure.

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