No. 744,382. PATENTED NOV. 17, 1903.

H. MOOR.

PULVERIZER.

APPLICATION FILED NOV. 3, 1902.

NO MODEL.

Fig 1

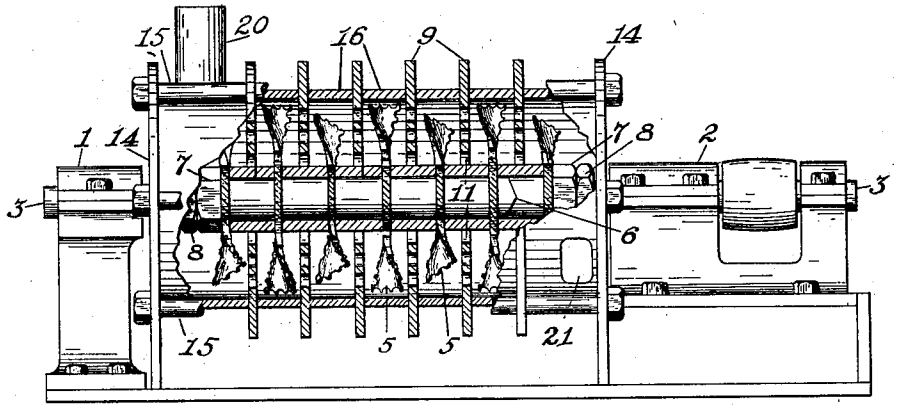


Fig 2.

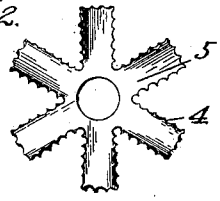


Fig 3

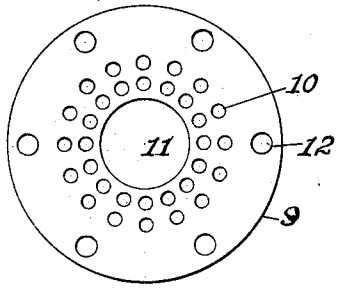


Fig 4

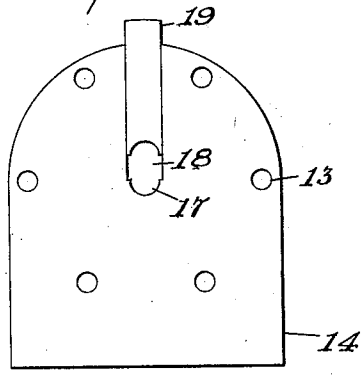
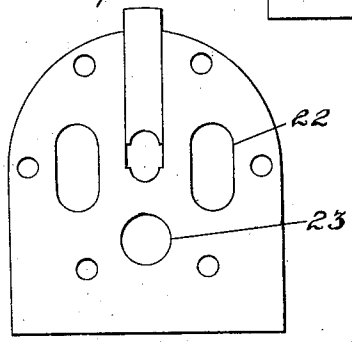


Fig 5



Witnesses
Wiley E. Crane Jr.
J. B. Smith

Inventor
Harry Moor
By Charles N. Butler
Attorney

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 744,382. Patented November 17, 1903.

UNITED STATES PATENT OFFICE.

HARRY MOOR, OF ROXBORO, PENNSYLVANIA.

PULVERIZER.

SPECIFICATION forming part of Letters Patent No. 744,382, dated November 17, 1903.

Application filed November 3, 1902. Serial No. 129,861. (No model.)

To all whom it may concern:

Be it known that I, HARRY MOOR, residing at Roxboro, in the county of Philadelphia and State of Pennsylvania, have invented certain Improvements in Pulverizers, of which the following is a specification.

This invention relates to mechanism for disintegrating and pulverizing solid materials, referring in part to the subject-matter of my contemporaneously-pending application Serial No. 129,860. It is especially designed to provide improved means for reducing coal to the finely and uniformly pulverized condition in which it attains its highest efficiency as a fuel.

A leading object of the improvements is to provide crushing or pulverizing mechanism adapted for moving the material in process of reduction through the pulverizer and ejecting it therefrom.

A further object is to provide a machine of simple parts readily constructed or replaced and easily assembled or separated.

The nature and characteristic features of the improvements will more fully appear by reference to the following description and the accompanying drawings in illustration thereof, of which—

Figure 1 represents a sectional elevation of a pulverizer embodying the invention. Fig. 2 is a view illustrating the construction of the combined crusher and blower. Fig. 3 represents a view of the division plates or disks. Fig. 4 is a view representing the end plate of the pulverizer, and Fig. 5 represents a form of end plate that may be employed for the discharge end of the pulverizer.

Referring to the drawings, the bearings 1 and 2 have journaled thereon the shaft 3, which may be driven in any suitable manner. The combined crushers and blowers 4 are screw-propellers having the angular or helical blades 5, preferably provided with serrated edges. These propellers and the spacing-sleeves 6 are slipped in alternation on the shaft 5 and rigidly clamped together by means of the nuts 7 and 8. Division-plates or partitions 9 separate the combined pulverizing and propelling blades 5, these plates being provided with the perforations 10, the openings 11 affording free space around the sleeves lying within the same, and the holes 12, through which and the corresponding holes 13 in the end plates 14 the bolts 15 are passed to hold togther these parts and the cylindrical casing-sections 16, located between the plates.

The term "helical" as used in the claims is to be taken as the equivalent of the term "angular" and to include any blade arranged at an angle to its shaft and adapted for both crushing and blowing.

The end plates have the shaft-openings 17, connected with slots 18, extending to the periphery and provided with slides 19, these slots permitting the regulation of air-admission and the ready removal of the shaft, with the parts thereon.

The material admitted by the inlet 20 may be ejected through the peripheral opening 21 or through end openings, as 22 or 23.

The coal introduced by the inlet 20 into the first compartment of the pulverizer is subjected to the influence of the revolving propeller-blades, which subject it to crushing impact and to centrifugal and longitudinal movement. Each blade exerts a crushing or grinding influence upon the coal as it revolves the same in its compartments, but, further, by direct impact and by its blowing action forces the coal longitudinally through apertures in the division-plates and through the pulverizer to the outlet, by which it is discharged directly into the furnace or into a collector, as may be desired. The results obtained are greatly superior to those of pulverizers heretofore employed, the efficiency being higher and the pulverization finer and more uniform.

The casing and transverse plates where large machines are employed may be divided upon a plane passing through or parallel with the axis, and other structural modifications may be made within the scope of my invention.

Having described my invention, I claim—

1. A pulverizer comprising a cylinder having projections extending inwardly therefrom, in combination with a revoluble shaft having helical devices thereon for disintegrating and blowing, said devices alternating with said projections, substantially as specified.

2. A pulverizer comprising a casing having

a series of inwardly-projecting perforated members, in combination with a revoluble shaft having a series of blades angularly disposed thereto and adapted for disintegrating and blowing, said blades alternating with said perforated members, substantially as specified.

3. A pulverizer comprising a cylinder having a series of inwardly-projecting perforated members, in combination with a revoluble shaft having a series of helical blades thereon, said blades alternating with said perforated members and carrying material in process of pulverization therethrough, substantially as specified.

4. A pulverizer comprising a cylinder having a series of perforated division-plates therein, said plates dividing said cylinder into a series of compartments, in combination with a revoluble shaft having thereon a series of helical propeller-blades, adapted to revolve in said compartments, substantially as specified.

5. A pulverizer comprising a journaled shaft having crushers thereon, said crushers propelling the material in process of pulverization transversely thereto, in combination with a cylindrical casing within which said shaft is located, said casing having its ends provided with openings or ways for the purpose specified.

6. A pulverizer comprising a sectional cylindrical casing, a series of perforated division-plates respectively separating sections of said casing, end plates for said casing, a series of bolts passing through said plates externally to said casing, a revoluble shaft having crushers thereon in said casing, said shaft passing through openings in said division-plates providing free space around said shaft, and sleeves on said shaft for holding said crushers, substantially as specified.

7. A pulverizer comprising a journaled shaft having helical propellers thereon provided with serrated blades in combination with fixed members alternating therewith for the purpose set forth, substantially as specified.

In testimony whereof I have hereunto set my hand, in the presence of the subscribing witnesses, this 1st day of November, A. D. 1902.

HARRY MOOR.

Witnesses:
WILLIAM E. CHAPMAN,
UTLEY E. CRANE, Jr.