

Feb. 7, 1928.

1,658,401

W. M. THOMAS
POWDERED COAL FEEDER
Filed April 11, 1927

2 Sheets-Sheet 1

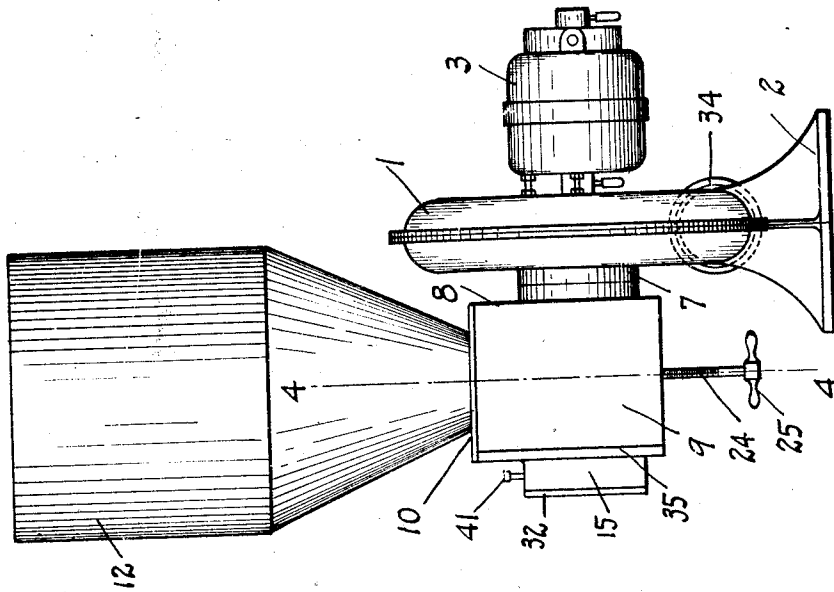


FIG. 2

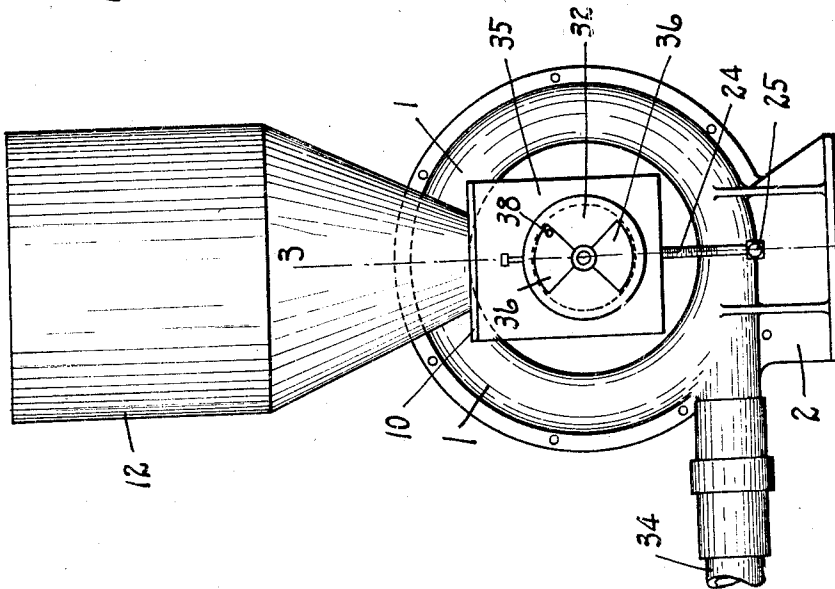


FIG. 1

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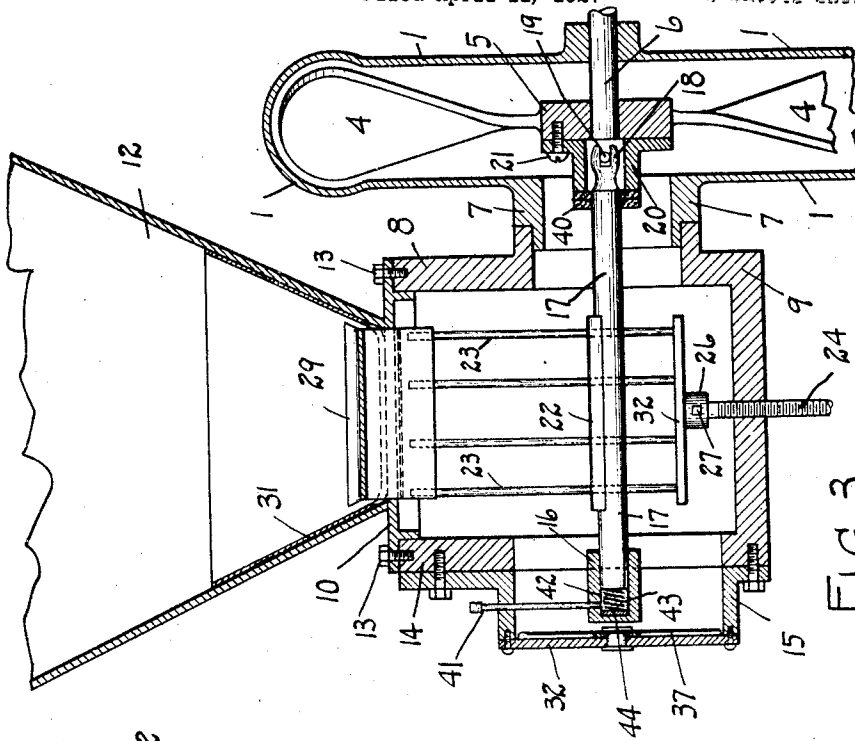


FIG. 3.

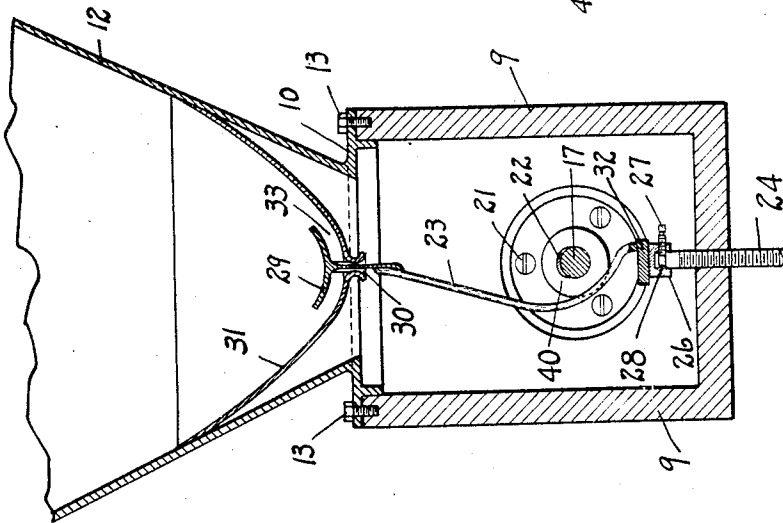


FIG. 4.

INVENTOR.

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UNITED STATES PATENT OFFICE.

WILLIAM M. THOMAS, OF CINCINNATI, OHIO.

POWDERED-COAL FEEDER.

Application filed April 11, 1927. Serial No. 182,730.

The object of my invention is to produce a simple and highly efficient device, for delivering powdered coal to a burner, furnace, or other fuel consuming elements, which shall feed the coal uniformly and in the same continuous volume found necessary.

Another object of the invention is to feed the powdered coal in lesser or greater volumes as needed by the consuming or fuel burning element.

In carrying out my invention, I provide a number of shaker wires operated by eccentric means and operating in connection with an agitator, between which agitator and bottom of the hopper holding the powdered coal is a space through which the powdered coal passes, means being provided for making said space of a less or greater extent, in order to be a smaller or greater amount of powdered coal.

All the features and advantages of my invention will become apparent from reading the following specification and claims.

In the accompanying drawing forming part of this specification:

Fig. 1 is a side view of my new coal feeding device,

Fig. 2 is a front view,

Fig. 3 is a section taken on line 3—3 of Fig. 1, and

Fig. 4 is a section taken on line 4—4 of Fig. 2.

The device is formed of a blower or fan 1, having a base 2, driving motor 3, fan blades 4, secured to a hub 5, which is securely mounted on a motor shaft 6.

The blower 1, is joined rigidly by a neck 7 to the side 8, of the housing or box 9. This box or housing carries at its upper part a flange 10 which is secured to a hopper 12, this flange is also secured in the housing 9 by cap screws 13.

Mounted to the side 14 of the box, I have a cap 15 which carries a bearing 16, and mounted in this bearing is one end of a shaft 17, the other end of the shaft having a bifurcated end 18 which engages over a pin 19 secured in the bearing 20, the bearing is connected to the hub 5 of the blower by screws 21. To shaft 17 at its central part, I provide a curved plate 22 which forms an eccentric and is used to engage or vibrate the shaker wires 23, when adjusted in a contact relation by the adjusting screw 24, which has a handle 25 at one end and at the other end is mounted in a cap 26, the cap 26 is

fastened to a plate 32 to which the wires 23 are also fastened. In cap 26 I mount the set screw 27 which engages groove 28 of the set screw 24 to prevent displacement.

As the handle 25 is turned causing the screw 24 to rise upwardly the shaker wires 23 will be sprung upwardly also and cause a vibrating or agitation, due to the eccentric plate 22, said agitation being carried to the trough-like agitator 29, causing the coal dust to drop or slip through the slotted opening 30, which is in the hopper base 31.

It will be seen from the foregoing description of the agitating member, that an adjustment is obtained for feeding the coal dust. If a small amount of coal dust is required the screw 24 is screwed downwardly, which closes the gap 33 between the agitator 29 and the hopper base 31, thereby allowing less coal dust to sift through, and in order to get a greater amount of coal dust through opening 30, the screw 24 is turned upwardly and if a still greater amount is required, the vibration caused by the eccentric plate 22 acting upon the wires 23, an agitation is caused which will give a greater amount of coal dust.

As the coal dust passes through the opening 30 it is drawn through the neck 7 of the blower, which forces it out through the opening 34 from whence it is carried to the furnace for ignition.

The blower and the shaft 17 are operated from the motor 3, and the bifurcated end of the shaft 17 is to allow for any variation or disalignment that may be caused in the operation of the device, the bifurcated end 19 and pin 18 provide a flexible shaft or a universal joint with shaft 6 of the motor.

In order to prevent dirt or dust from getting in flexible shaft joint, I provide felt washers 40, at joint end of shaft 17, and at the other end I provide a spring 43 in bearing 16 to keep end 18 and pin 19 in engagement. Packing 42 is to retain oil in bearing, which is supplied by oiler 41, and a washer 44 is for thrust for spring 43 and shaft 17.

In order to further regulate the feeding of the coal dust, I provide a regulator formed of a plate 35 which is fastened to the side 14 of the housing which plate has openings or ports 36 which are closed by a shutter 37 when desired; this shutter having a pin 38 with which to increase or reduce the size of the opening for regulating the draft caused by the blower 1.

While I have described one preferred form of carrying my invention into effect, it will be readily understood that I may modify and change the same somewhat, and I wish to be understood as claiming all such changes and modifications which fall within the scope of this specification and the appended claims.

What I claim as new and my invention and desire to secure by Letters Patent is:—

1. In a powdered coal feeder, means for holding powdered coal, a shaft suitably supported, an agitator suitably supported within the coal holding means, shaker rods, a support for said shaker rods at their lower extremity, at their upper extremity connected to said agitator, means for operating against said shaker rods to vibrate them and operate the agitator so that a predetermined amount of powdered coal will fall.

2. In a powdered coal feeder, means for holding powdered coal, a shaft suitably supported, an agitator suitably supported within the coal holding means, shaker rods, a support for said shaker rods at their lower extremity, at their upper extremity connected to said agitator, means for operating against said shaker rods to vibrate them and operate the agitator so that a predetermined amount of powdered coal will fall, and means for regulating the amount of powdered coal to be used.

3. In a powdered coal feeder, a receptacle for holding the powdered coal, having an outlet slot at the bottom thereof, an agitator, said agitator in the receptacle and spaced from the bottom thereof and extending through the slot in the receptacle, a series of shaker rods, a supporting means for the bottom of said shaker rods, said shaker rods connected at the top to lower extension of the agitator, and means for operating said shaker rods and thus operating the agitator so that powdered coal will pass down through the slotted opening in the bottom of the holding receptacle.

4. In a powdered coal feeder, a receptacle for holding the powdered coal, having an outlet slot at the bottom thereof, an agitator, said agitator in the receptacle and spaced from the bottom thereof, and extending through the slot in the receptacle, a series of shaker rods, a supporting means for the bottom of said shaker rods, said shaker rods connected at the top to lower extension of the agitator, and means for operating said shaker rods and thus operating the agitator so that powdered coal will pass down through the slotted opening in the bottom of the holding receptacle, and means for moving the shaker rods upwardly and downwardly to increase or diminish the space between the bottom of the agitator and the slot so that a greater or lesser amount of powdered coal will pass through said slot.

5. In a powdered coal feeder, means for holding powdered coal, a shaft suitably supported, an eccentric on said shaft, an agitator suitably supported within the coal holding means, shaker rods, a support for said shaker rods at their lower extremity, at their upper extremity connected to said agitator, said eccentric shaft constituting means for operating against said shaker rods to vibrate them and operate the agitator so that a predetermined amount of powdered coal will fall.

6. In a powdered coal feeder, means for holding powdered coal, a shaft suitably supported, an agitator suitably supported within the coal holding means, flexible shaker rods, a support for said shaker rods at their lower extremity, at their upper extremity connected to said agitator, means for operating against said shaker rods to vibrate the same.

In testimony whereof, I affix my signature at the city of Cincinnati, in the county of Hamilton and State of Ohio, this 26th day of March, 1927.

WILLIAM M. THOMAS.