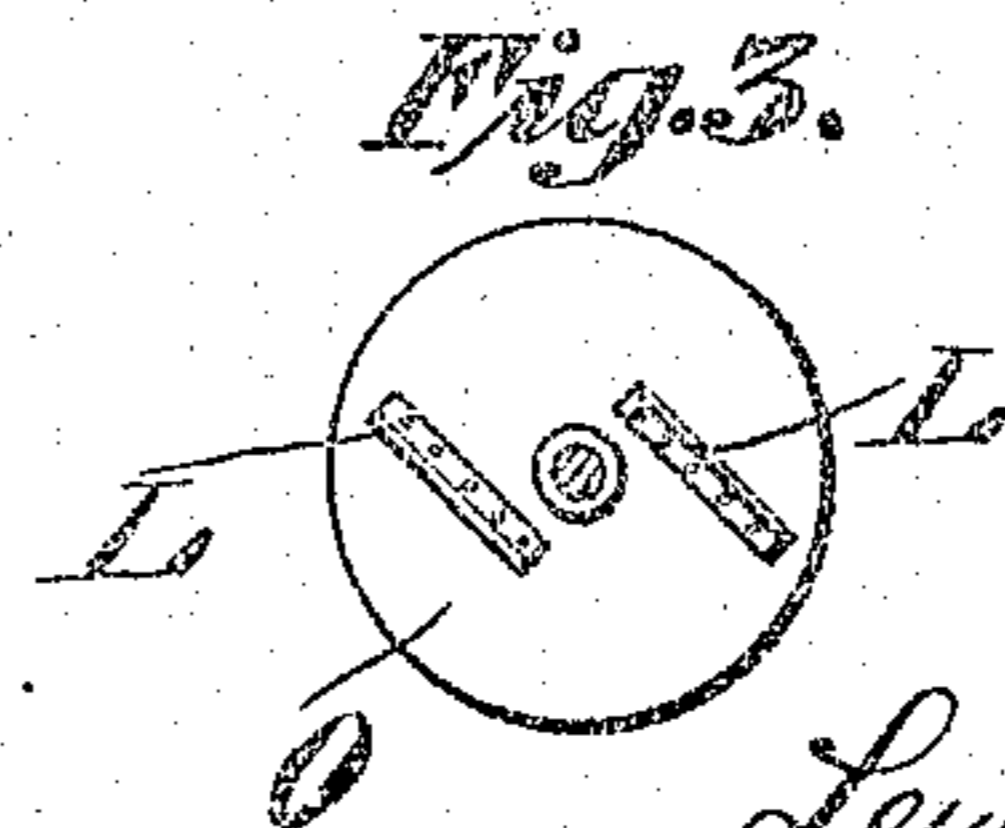
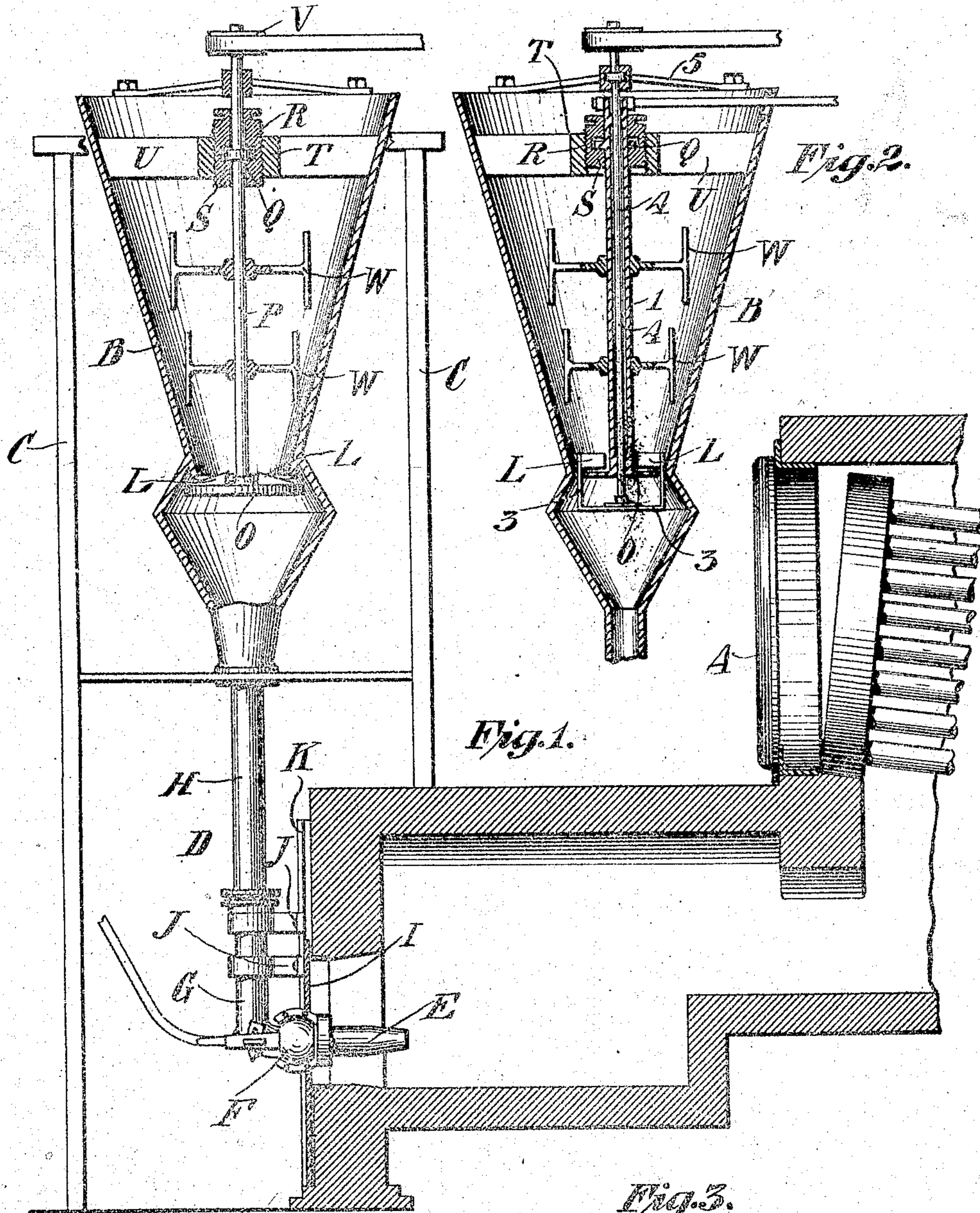


No. 815,686.

PATENTED MAR. 20, 1906.

L. K. DAVIS.
FUEL FEEDING DEVICE.
APPLICATION FILED APR. 25, 1903.



Witnesses
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UNITED STATES PATENT OFFICE.

LEWIS K. DAVIS, OF INDIANAPOLIS, INDIANA.

FUEL-FEEDING DEVICE.

No. 815,686.

Specification of Letters Patent.

Patented March 20, 1906.

Application filed April 26, 1903. Serial No. 154,247.

To all whom it may concern:

Be it known that I, LEWIS K. DAVIS, a citizen of the United States, and a resident of Indianapolis, Indiana, have invented certain new and useful Improvements in Fuel-Feeding Devices, of which the following is a specification accompanied by drawings.

The invention relates to fuel-feeding apparatus for furnaces, but more particularly to apparatus for feeding fine fuel, as coal or coke, coal-dust, and the like.

The objects of this invention are to improve upon apparatus hitherto devised for evenly distributing fine fuel in furnaces through the agency of fluid under pressure, as air or steam, and enable the distribution to be effected without clogging when the fuel contains moisture which tends to form lumps.

Another object of this invention is to afford provision for the regulation of the apparatus as desired.

Further objects of the invention will hereinafter appear; and to these ends the invention consists of apparatus for carrying out the above objects embodying the features of construction, combinations of elements, and arrangement of parts having the general mode of operation substantially as hereinafter fully described and claimed in this specification and shown in the accompanying drawings, in which—

Figure 1 is a vertical sectional elevation of apparatus embodying the invention. Fig. 2 is a vertical sectional elevation of a modified form of apparatus. Fig. 3 is a detail plan view of that form of disk in which the knives are connected to the disk.

Referring to the drawings, A represents a suitable furnace, in connection with which the improved apparatus is shown, in this instance arranged in front of the furnace; but it may be arranged in any desired position relatively thereto.

A suitable hopper B is shown supported upon the frame C, and a suitable passage formed of piping D connects the hopper with any desired form of apparatus for discharging the fuel into the furnace, this apparatus being shown in this instance as a nozzle E of substantially the same construction as that shown and described in my copending application, Serial No. 98,877, filed March 12, 1902. This particular apparatus forms no part of the present invention and will not be described in detail herein, it being sufficient

to state that the nozzle E is connected with the piping D by a universal joint F, so that it may be turned in any desired direction to discharge the fuel therefrom, and means are provided for raising and lowering the nozzle bodily at the entrance of the furnace, this operation being provided for by forming the piping D in telescopic sections G and H and supporting the nozzle and the portion H of the piping in such manner relatively to the furnace that they may be moved vertically. As shown, the portion G of the piping is connected to a slidable plate I by means of the struts J, and the nozzle projects through this plate. The plate itself is slidably supported in guides K, connected to the furnace. The portion G of the piping is suitably connected, as shown, to the hopper B.

According to both forms of this invention the hopper B is provided with revoluble knives L, which in Fig. 1 are shown carried by the revoluble disk O. In Fig. 2 the knives are shown supported independently of the disk O; but they are not shown vertically adjustable. In Fig. 2 the knives are revoluble, but, as stated, not vertically adjustable, and the disk O is revoluble and adjustable, so that the knives and the disk have vertical movement relatively to each other and may be rotated in opposite direction, if desired, or the knives may remain stationary.

Any suitable means may be provided in Fig. 1 for permitting vertical adjustment of the disk O, while at the same time affording provision for rotation of the same. In this instance the central shaft P is connected to the disk O and provided with a collar Q, which has a bearing in the groove R in the outwardly-screw-threaded sleeve S. Said sleeve S is adapted to the inwardly-screw-threaded socket T, carried by the supports U upon the hopper. The upper portion of the sleeve S, as shown, is so constructed that a wrench may be used for rotating the sleeve in its socket to adjust the vertical height of the disk O. Rotation is imparted to the shaft P by any suitable means, as a pulley V, to which belting may be applied. The disk O, as shown, projects slightly beyond the lower edge of the hopper B, and the knives are arranged, as shown in Fig. 3, so that the material, as coal-dust, within the hopper is continually forced out under the lower edge of the hopper by the action of the knives. If desired, an agitator W of any suitable construction may be provided upon the shaft P.

In Fig. 2 the disk O, as shown, is carried by the revoluble sleeve 1, provided with the collar Q, adapted to the groove R in the outwardly-screw-threaded sleeve S, which, as before, is vertically movable in the socket T. The knives L, arranged in this instance above the disk, are carried by the arms 3, supported at the lower end of the rod 4, extending longitudinally within the hollowed shaft 1. The rod 4 is suitably supported at its upper end upon the frame 5, and in this instance no provision is afforded for vertical movement of the knives. The disk is rotated, as before, by means of a suitable pulley and a belting which may be applied thereto. In Fig. 2 it will be seen that according to the position of the disk relatively to the knives a larger or smaller opening will be afforded between the disk and the lower edge of the hopper for regulating the flow of material, as in Fig. 1.

Obviously the invention may be embodied in widely-varying forms, and some features of the invention may also be used without others.

Therefore, without limiting the invention

to the construction shown and described nor enumerating equivalents, I claim, and desire to obtain by Letters Patent, the following:

1. In an apparatus for feeding fuel, the combination with a hopper, of a revoluble disk forming the bottom thereof, knives within the hopper and in proximity to said disk, means for adjusting said disk, and an agitator within the hopper, for substantially the purposes set forth.

2. In an apparatus for feeding fuel, the combination with a hopper, of a revoluble disk forming the bottom thereof, knives within the hopper and in proximity to said disk, means for adjusting said disk, and an agitator within the hopper connected to be operated and adjusted with the disk, for substantially the purposes set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

LEWIS K. DAVIS.

Witnesses:

E. VAN ZANDT,

H. L. OBERLEUFFER.