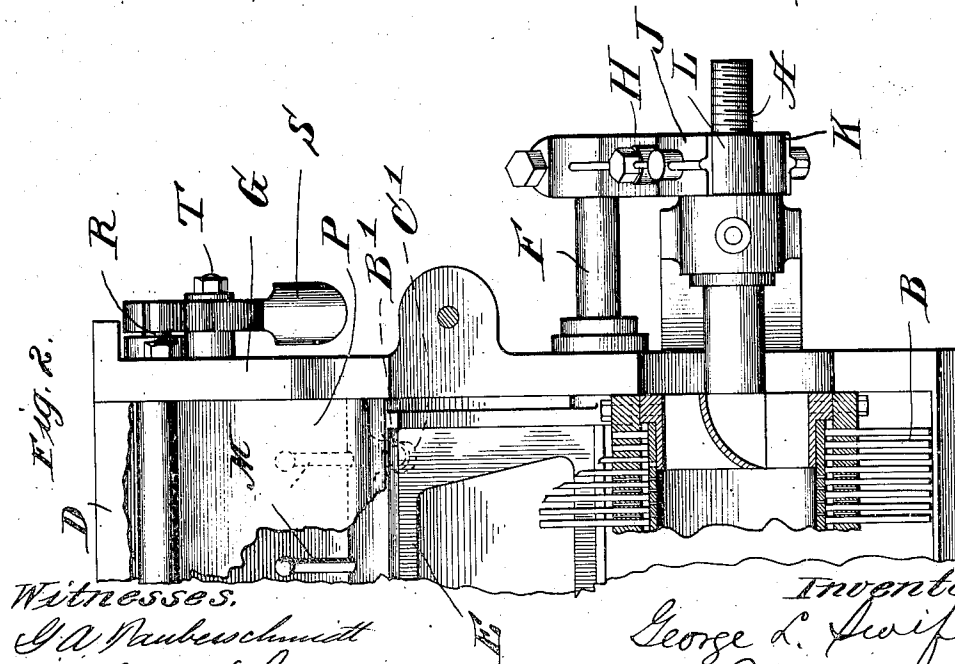
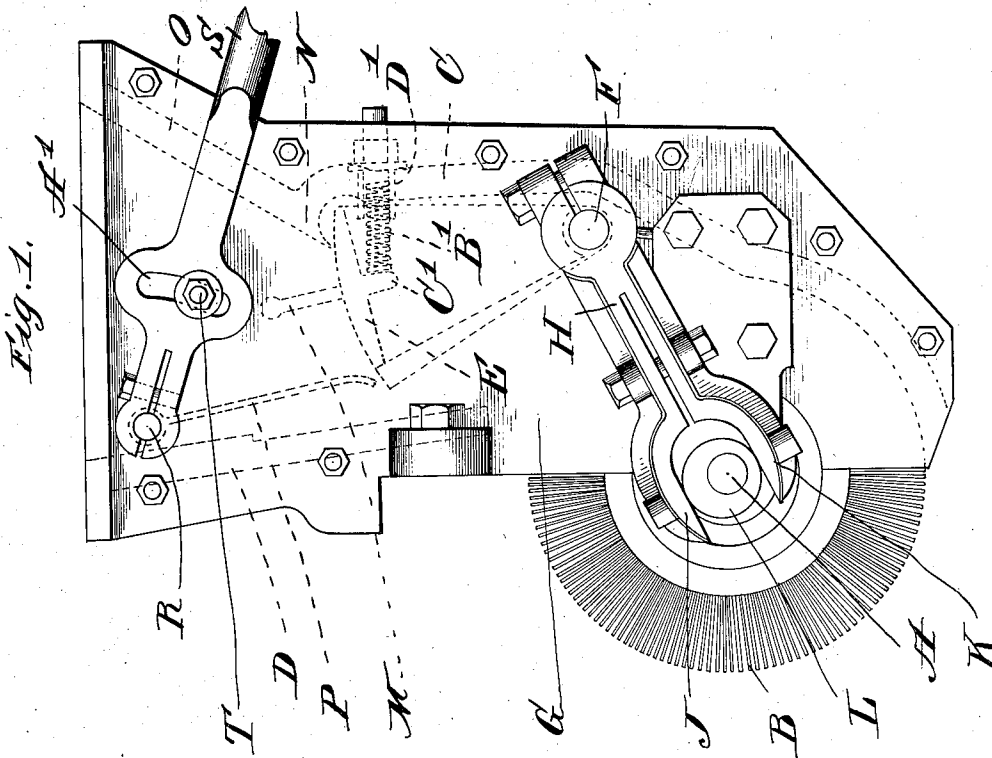


No. 827,828.

PATENTED AUG. 7, 1906.

G. L. SWIFT.
FINE FUEL FEEDING APPARATUS.

APPLICATION FILED MAR. 20, 1905.



Witnesses.

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UNITED STATES PATENT OFFICE.

GEORGE L. SWIFT, OF CHICAGO, ILLINOIS.

FINE-FUEL-FEEDING APPARATUS.

No. 827,828.

Specification of Letters Patent.

Patented Aug. 7, 1906.

Application filed March 20, 1905. Serial No. 250,936.

To all whom it may concern:

Be it known that I, GEORGE L. SWIFT, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Fine-Fuel-Feeding Apparatus, of which the following is a specification.

This invention relates to fine-fuel-feeding apparatus.

The object of the invention is to provide a construction of fine-fuel-feeding apparatus which is simple and efficient and wherein the feed may be adjustably regulated.

A further object of the invention is to provide a fine-fuel-feeding apparatus mechanically operated and noiseless in the operation thereof.

Other objects of the invention will appear more fully hereinafter.

The invention consists, substantially, in the construction, combination, location, and arrangement of parts, all as will be more fully hereinafter set forth, as shown in the accompanying drawings, and finally pointed out in the appended claims.

Referring to the accompanying drawings, and to the various views and reference-signs appearing thereon, Figure 1 is a view in side elevation of a fine-fuel-feeding apparatus, illustrating a construction embodying the principles of my invention. Fig. 2 is a view in front elevation of the same, parts broken off, parts broken out, and parts in vertical section.

The same part is designated by the same reference-sign wherever it occurs throughout both views.

In Patent No. 558,875, issued April 21, 1896, and reissued April 3, 1900, No. 11,816, to Georg Hilliger, is set forth, described, and claimed a construction of apparatus for feeding coal-dust employing a rotating brush arranged to operate within a hopper and in connection with shaking devices for feeding fine fuel, such as coal-dust, to a furnace-chamber, and in Patent No. 764,693, granted to me July 12, 1904, is shown, described, and claimed a construction of fuel-feeding apparatus relating to the same general character of invention.

The present invention relates to an apparatus of this nature, and is particularly designed to regulate the feed of fine fuel to the

action of the brush for delivery into the furnace-chamber.

Referring to the accompanying drawings, reference-sign A designates a shaft suitably journaled and driven and upon which is mounted a brush, (indicated generally by reference-sign B.) The brush B is arranged to rotate adjacent the delivery-mouth of a hopper, the outer wall of the hopper being indicated by dotted lines at C and the rear wall of the hopper being indicated by dotted lines at D in Fig. 1. The fine fuel to be delivered into the furnace-chamber may be supplied to the hopper in any suitable or convenient manner, and in accordance with the principles of my invention I arrange suitable devices within the hopper to regulate the supply of fine fuel contained therein to the action of the brush. To this end I employ a shaker-frame E, constructed with pintles F, suitably journaled in the end plates G of the hopper. Upon the projecting end of one of the pintles F (only one of such pintles being shown) is adjustably clamped a yoke H. This yoke is provided with forked arms J K, arranged to straddle over an eccentric L on shaft A, whereby rotary motion imparted to shaft A imparts a rocking movement to the yoke H, and hence also to the pintle F and to shaker-frame E, thereby imparting a vibratory movement to the said shaker-frame. This shaker-frame is arranged to form the bottom wall of the space within the hopper in which the fuel is received, and, preferably and as shown in Fig. 1, the supporting-surface of said frame is rounding and downwardly inclined in the normal position thereof.

If desired and in order to prevent packing of the fuel within the space above the shaker-frame E, I provide said shaker-frame with pins or projections M, arranged to project upwardly from the surface of said frame and into the bed of fuel contained in the hopper. The outer edge of the shaker-frame is designed to normally project slightly beneath an overhanging lip portion (indicated at N) of the upper portion O of the outer wall or side plate C of the hopper. Coöperating with the lower or delivery edge of the shaker-frame E is a plate P. This plate is provided with pintles R, arranged to extend through the end plates G of the hopper, and suitably and adjustably clamped upon the projecting

end of one of the pintles R is a lever-arm S, whereby the plate P may be rocked or swung into adjustable position with reference to the lower or delivery edge of shaker-frame E. A bolt T, operating through an elongated curved slot A' in lever S, serves to hold said lever, and hence also the plate P, in adjusted position with reference to the lower edge and the plane of vibration of the shaker-frame.

If desired and in order to take up any wear on the parts and to prevent chattering and pounding during the operation of the device, a spring tension may be imposed upon the shaker-frame, normally operating to maintain the shaker-frame in one limit of its rocking or swinging movement. I have indicated such construction in dotted lines in Fig. 1, B' designating a spring arranged to bear at one end against a lug C' on the shaker-frame and at the opposite end against an adjusting-sleeve D', suitably mounted in the front plate C of the hopper.

It is believed that the operation will be readily understood from the foregoing description, taken in connection with the accompanying drawings. Rotation is imparted to shaft A to rotate the brush B. By reason of the cam L engaging the yoke-arms K L a vibratory motion is imparted to the yoke H, thereby rocking or vibrating shaker-frame E. By suitably adjusting the plate P with reference to the lower edge of the shaker-frame an adjustable clearance between the lower edge of said plate P and the adjacent edge of the shaker-frame is provided, which clearance is increased and decreased during the vibratory movements of the shaker-frame, thereby permitting the fine fuel to be delivered from the shaker-frame and to fall upon the rotary brush B, by which such fuel is delivered into the furnace-chamber. I have found in practice and especially where the fine fuel is delivered into the furnace-chamber in dry form that more difficulty has been experienced in suitably and properly regulating the feed of such fuel to the brush, and the use of wet fine fuel is disadvantageous and should be avoided. I have found, however, that a construction embodying the principles above described provides for an efficient regulation of the feed of fine fuel in the dry state and avoids the necessity of employing wet fine fuel and the attendant disadvantages and objectionable features thereof, and since the plate P is adjustable or may be adjustably rocked to the desired position it will be observed that an adjustable clearance is maintained between the plate P and the shaker-frame, thereby enabling the feed of the fine fuel to be controlled and regulated according to the requirements and conditions.

Having now set forth the object and na-

ture of my invention and a construction embodying the principles thereof, what I claim as new and useful, and desire to secure by Letters Patent, is—

1. In a fine-fuel-feeding apparatus, a hopper, a brush journaled to rotate therein, an oscillating shaker-frame arranged within the hopper to support the fine fuel delivered thereto, a plate cooperating with the shaker-frame and means for adjusting said plate relatively to the shaker-frame.
2. In a fine-fuel-feeding apparatus, a hopper, a rotary brush journaled to rotate therein, an oscillating shaker-frame arranged within the hopper to form a support for the fuel contained therein, means for oscillating said frame, a plate cooperating with said shaker-frame, and an adjusting-lever connected to said plate, whereby the position of said plate relative to said shaker-frame may be adjusted.
3. In a fine-fuel-feeding apparatus, a hopper, a rotary brush journaled to rotate therein, a shaker-frame arranged within the hopper to support the fuel supplied to the hopper, the supporting-surface of said frame extending across the hopper and being downwardly inclined, means for vibrating said shaker-frame, and a stationary adjustable plate cooperating with the inclined portion of the supporting-surface of said shaker-frame to form a delivery-clearance for the fuel from said frame.
4. In a fine-fuel-feeding apparatus, a hopper, a rotary shaft journaled therein, a brush carried by said shaft, an eccentric mounted on said shaft, an oscillating shaker-frame arranged within the hopper to form a support for the fuel contained therein, said shaker-frame having a pintle, a yoke connected to said pintle and forked to straddle said eccentric, and an adjustable stationary plate cooperating with the supporting-surface of said shaker-frame.
5. In a fine-fuel-feeding apparatus, a hopper one wall thereof being provided with a projecting portion, a shaker-frame arranged therein to form a support for the fuel contained in the hopper, one edge of the shaker standing beneath the projecting portion, pins or projections extending above the supporting-surface of said shaker-frame, an adjustable plate cooperating with the supporting-surface of the shaker-frame to adjustably regulate a feeding-clearance for the fuel, a brush, means for operating the same, and means for vibrating said shaker-frame.
6. In a fine-fuel-feeding apparatus, a hopper, a shaft journaled therein and carrying a brush, an eccentric mounted on said shaft, a shaker-frame journaled to vibrate within said hopper, a yoke connected to said shaker-frame and having a forked end straddled

over the eccentric, a spring bearing against
the shaker-frame, pins or fingers carried by
said shaker-frame, a plate cooperating with
the shaker-frame to provide a feeding-clear-
5 ance for the fuel, an arm connected to said
plate, and means for securing said arm in ad-
justed position.

In witness whereof I have hereunto set my
hand, this 16th day of March, 1905, in the
presence of the subscribing witnesses.

GEORGE L. SWIFT.

Witnesses:

C. H. SEEM,
S. E. DARBY