J. P. BURNHAM.

APPARATUS FOR FEEDING SHAVINGS, SAW-DUST, &c., TO FURNACES.

No. 183,635. Patented Oct. 24, 1876.

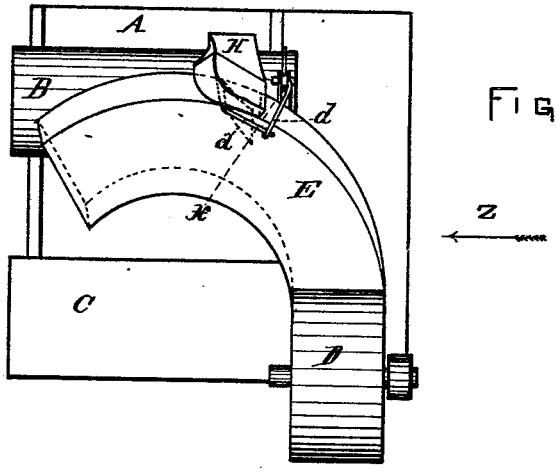
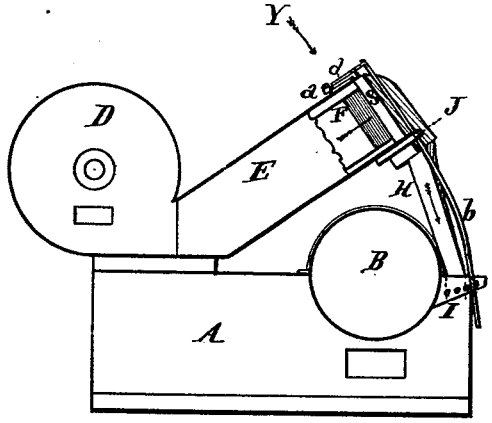


FIG. 1.

FIG. 2.



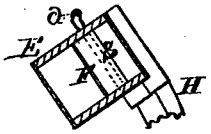


FIG. 3.

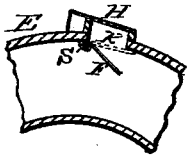


FIG. 4.

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UNITED STATES PATENT OFFICE.

JOHN P. BURNHAM, OF CHICAGO, ILLINOIS.

IMPROVEMENT IN APPARATUS FOR FEEDING SHAVINGS, SAWDUST, &c., TO FURNACES.

Specification forming part of Letters Patent No. **183,635**, dated October 24, 1876; application filed August 12, 1876.

To all whom it may concern:

Be it known that I, JOHN P. BURNHAM, of Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Devices for Separating Shavings from Planers, of which the following is a specification:

The nature of the present invention consists in a spout or pipe formed on the segment of a circle and provided at its periphery with a valve or cut-off, which is adjustable and presents a thin edge to the shavings as they are driven by a fan at a great speed into and through the curved pipe by a blast. The shavings, being heavier than the air, are, by their momentum, pressed closely against the bottom and periphery of the pipe, so that a part thereof may be discharged into a furnace, as required, and the balance driven through the pipe, the force of the blast being such as to break or sever the shavings on the edge of the cut-off, and making a complete separation of them, as hereinafter to be fully described and shown.

In the drawings, Figure 1 is a top or plan view of my device as applied to a furnace. Fig. 2 is a side elevation thereof, looking toward Fig. 1, in the direction of dart *z*. Fig. 3 is a section through pipe E on line *x*, Fig. 1. Fig. 4 is a view of a portion of the pipe, with the top plate removed to show the cut-off, looking in the direction of dart Y, Fig. 2.

A represents an ordinary steam-boiler furnace, and B the boiler. C shows the bed of the planer, and D an ordinary suction and blast fan. E represents a pipe which is curved conforming to the segment of a circle, and is set in incline, (but it may set level,) and which should be made of sheet metal, or lined with sheet metal if made of wood. The periphery of this pipe is provided with an opening, and to the farthest side of the opening from the fan D is hinged a cut-off valve, F, which should be quite thin on the edge presented to the blast, but need not be sharp, for the purpose of breaking or severing shavings coming from the fan and delivering a part thereof to the furnace through the opening in the pipe E, and conducting the balance not needed in the furnace to any place desired. This valve is to be opened, to a greater or less extent, by means of a rod or post, S, passing through the pipe E, and having bearings therein, and fastening to the cut-off, and, by means of an arm, 2, lever *b*, and connecting-rod *d*, the lever being pivoted to the drop-pipe at J and held in any desired position by pins or other suitable fastenings on a fixed plate, I. A drop-pipe, H, communicates with the opening in the periphery of the pipe E and with the furnace.

As to the state of the art, I am aware that valves have been used to permit shavings from planers to pass from one pipe to another, and to give direction in escaping from the fan; but I claim to have discovered that shavings may be driven by a blast-fan at such a rate of speed that they may be broken or separated on the edge of the cut-off, so that, by the use of one main pipe and one branch pipe, shavings may be discharged in two places, at the same time feeding the furnace with such an amount of shavings as required to keep a steady fire.

Experiments in the rate of speed which the shavings should be driven through the pipe E show that one mile per minute will separate shavings ordinarily dry, but greater or less speed may be given when shavings are very dry or very damp—the drier the shavings the less the speed required.

I claim and desire to secure by Letters Patent of the United States—

In an apparatus for feeding shavings, sawdust, &c., to furnaces, the curved pipe or tube E, having a valve-opening on its outer periphery provided with an adjustable cut-off valve, F, with its edge presented to the blast, whereby the shavings and air-blast are separated, the valve-opening communicating with pipe H, which leads to the furnace, the ends of said tube E leading respectively to the fan and the waste-heap, all constructed and combined to operate, substantially as described.

JOHN P. BURNHAM.

Witnesses:

OTT. ADIX,

G. L. CHAPIN.