A. J. EMLAW.

Improvement in Apparatus for feeding Saw Dust to Boiler Furnaces.

No. 120,052. Patented Oct. 17, 1871.

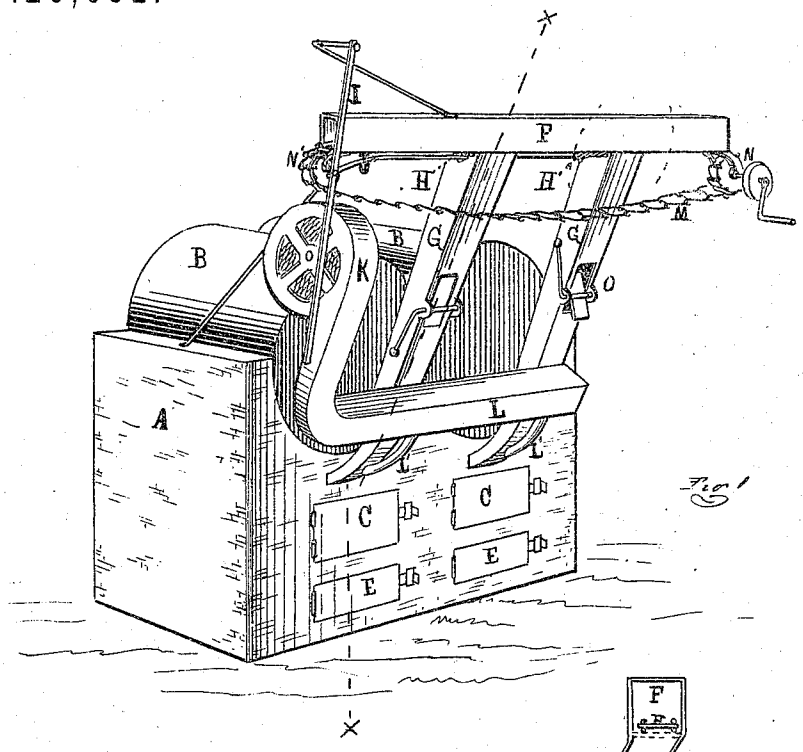

Fig. 1

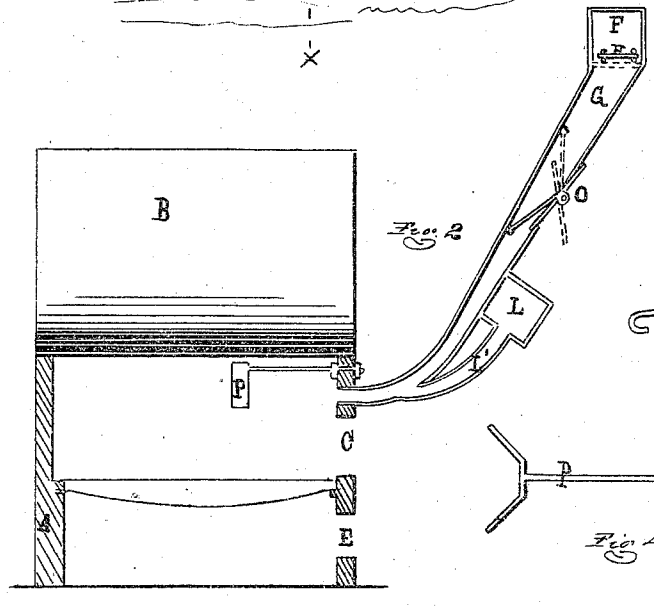

Fig. 2

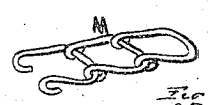

Fig. 3

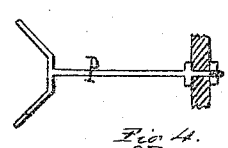

Fig. 4.

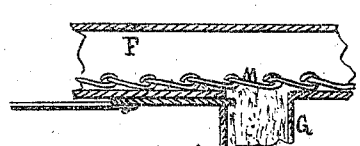

Fig. 5.

ATTEST:

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AM. PHOTO-LITHOGRAPHIC CO. N.Y. (OSBORNE'S PROCESS.)

UNITED STATES PATENT OFFICE.

ANDREW J. EMLAW, OF GRAND HAVEN, MICHIGAN.

IMPROVEMENT IN FEEDING SAWDUST TO FURNACES.

Specification forming part of Letters Patent No. 120,052, dated October 17, 1871.

To all whom it may concern:

Be it known that I, ANDREW J. EMLAW, of Grand Haven, in the county of Ottawa and State of Michigan, have invented a new and useful Improvement in Apparatus for Feeding Sawdust to the Boiler-Furnaces of Saw-Mills; and I do declare that the following is a true and accurate description thereof, reference being had to the accompanying drawing and to the letters of reference marked thereon, and being a part of this specification, in which—

Figure 1 is a perspective view of my improvement as applied to a pair of steam-boilers. Fig. 2 is a section taken on the plane *x x* in Fig. 1. Fig. 3 is an enlarged perspective view of a portion of the chain which distributes the sawdust to the chutes. Fig. 4 is a plan of the spreading-plate under each boiler; and Fig. 5 is an enlarged sectional view of a portion of the distributing-tube, showing the valve to one of the feed-chutes opened.

Similar letters of reference indicate corresponding parts in the several figures.

The nature of this invention relates to an apparatus for automatically feeding the sawdust made in lumber-mills to the furnaces under the boilers, whereby the expense of handling and firing the sawdust is saved, while the larger pieces of refuse lumber, bark, &c., will be carried off after separation from the sawdust to a refuse-burner detached from the mill, or elsewhere, as preferred. The invention consists in the arrangement of an endless chain, the upper chord of which is caused to travel through a distributing-pipe by a chain-wheel rotated from any convenient source of power, distributing the sawdust which sifts through its links to feed-chutes pendent from its bottom, discharging into the furnace under each boiler, and in connection therewith a fan-blower arranged to deliver a blast of air near the lower end of each chute to blow the sawdust into the furnace in volume regulated by a sliding gate at the top of each chute; also, in a peculiar spreading-plate in the furnace under each boiler, to distribute the fuel blown in over the grates; also, in providing the chutes with traps for delivering the sawdust on the hearth when required.

In the drawing, A represents an arch, in which are set two boilers, B B. C are the fire-doors, and E the ash-doors of the front, of the usual construction. F is a distributing-box or pipe, carried across the fire-room above and in front of the arch, from which, opposite each boiler, a feed-chute, G, is led from its bottom to and through the front of the arch, terminating in a spout or orifice under the front end of each boiler. H is a cut-off slide at the top of each chute, operated by a lever, I, and rod J, to regulate the opening from the pipe F; or the valve-slide of each chute may be operated and adjusted independently, if preferred. K is a fan or rotary pressure blower, driven from any convenient line of shafting in the mill. From the blower the blast-tube L is carried under and across the chutes and closed at the extremity. A branch blast-tube or nozzle, L′, is carried into each chute near its lower end. M is an endless chain, the construction of which is shown in Fig. 3. The upper chord of this chain passes through the pipe F, resting on its bottom, passing around the chain-wheels N N′ journaled across the ends of said pipe, the former being rotated by the machinery of the mill. O is a trap on the under side of each chute, which, when latched open, will permit a quantity of sawdust to fall on the hearth sufficient to get up steam in the morning if the mill is not run nights.

If preferred, a fan-blower may be provided for each feed-chute, and, in practice, where large nests of boilers are to be fired, it is found necessary to use several blowers, owing to the difficulty of adjusting the blast to an equal division among the several chutes.

Any suitable carrier may be used to convey the sawdust from the saws to the end of the feed-box E, and another may be used to convey the refuse bark, &c., which will not sift through the chain to a refuse-burning furnace, if one be used, or to a waste-heap, if not.

It will readily be seen that the chain carries the sawdust along to the openings of the feed-chutes, through which it falls to the furnace, but just before entering it encounters the blast, and is driven in toward the rear ends of the boilers. To arrest its course and at the same time to distribute the fuel over the grates, I place a deflecting and dividing-plate, P, under each boiler, with its apex opposite the mouth of the chute, which effectually accomplishes the purpose.

I am well aware that blowers have been used for blowing sawdust into furnaces; but in such

cases heretofore the sawdust passed through the blower, which was liable to choke up; and I disclaim, broadly, the employment of a blower for the purpose of blowing fuel into the furnace; but

What I do claim as my invention, and desire to secure by Letters Patent, is—

1. The construction and arrangement of a blower, K, and chute G, in the manner and for the purpose set forth.

2. The employment of the distributing-plates P under the boilers, in connection with the feed-chutes G, through which the fuel is blown into the furnace, as and for the purpose set forth.

3. The arrangement of the chain M and chain-wheels N N′ with relation to the box F for distributing the fuel to the feed-chutes G, as set forth.

4. The arrangement of the slides H, lever I, and rod J, with relation to the box F and chutes G, as and for the purpose set forth.

5. The traps O in the chutes G, as described, for the purpose specified.

ANDREW J. EMLAW.

Witnesses:

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