

Dec. 8, 1931.

M. A. HOFFT ET AL.

1,835,989

FUEL FEEDING APPARATUS

Filed Jan. 29, 1930

2 Sheets-Sheet 1

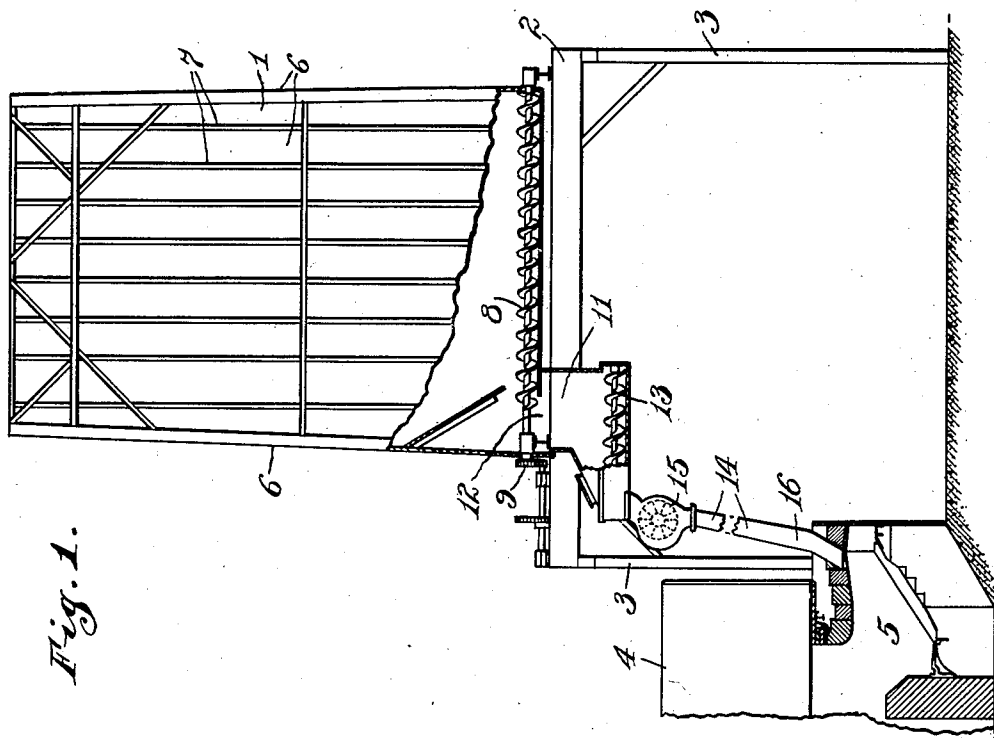


Fig. 1.

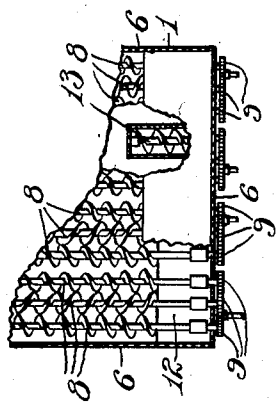


Fig. 3.

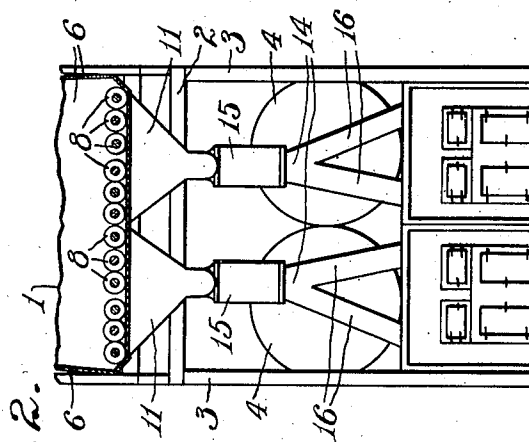


Fig. 2. 1

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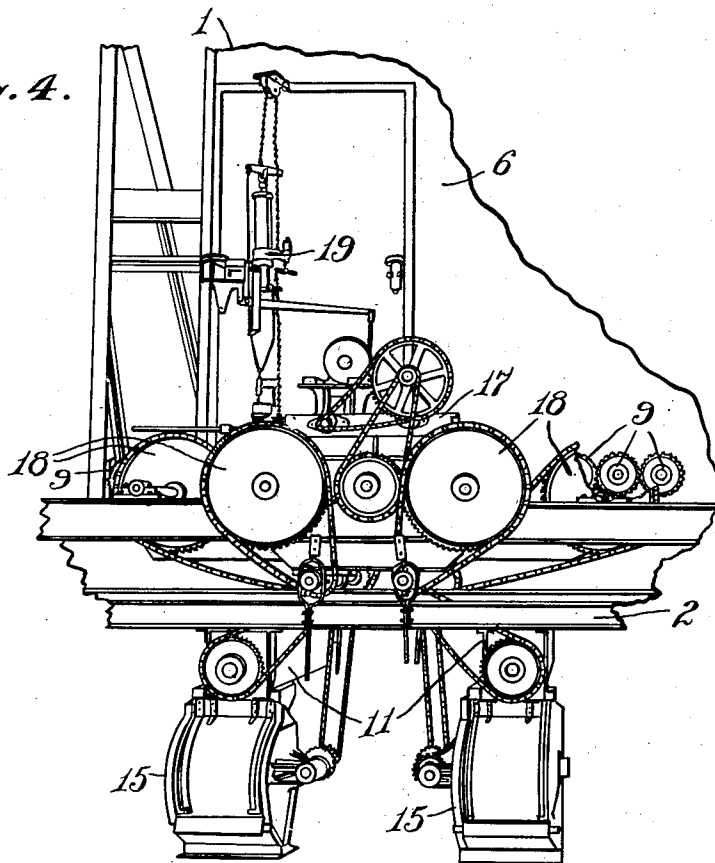
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Fig. 4.



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UNITED STATES PATENT OFFICE

MAURICE A. HOFFT, NICK T. PUCKETT, AND WALTER M. SQUIRES, OF INDIANAPOLIS,
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FUEL FEEDING APPARATUS

Application filed January 29, 1930. Serial No. 424,180.

Our invention relates to improvements in means for feeding fuel to furnaces and particularly "waste" fuel of that character composed principally of sawdust, wood chips and the like. Commercially it is the custom to convey sawdust, the dust from sanding machines, shavings and the like, in large factories from the wood working machines to bins from whence this accumulated material is fed to furnaces for the purpose of producing power.

In the type of bins now used, the accumulated material including chips, shavings and like material arches so that it does not feed to the bottom of the bin and on to the conveyors. This is particularly so where the material has a slight degree of moisture. Various expedients have been resorted to for preventing this arching and for breaking up the material so that it will feed by gravity to the bottom of the bin.

It is one of the objects of our invention to provide a structure for receiving material of the above type which will prevent the arching of the material in the bin and insure a constant downward feeding of the material as the material is removed from the bottom of the bin.

For the purpose of disclosing our invention, we have illustrated a certain embodiment thereof in the accompanying drawings, in which:

Fig. 1 is a side elevation partially in section of a bin embodying our invention associated with a furnace;

Fig. 2 is a front elevation thereof partially in section;

Fig. 3 is a plan view of the bottom of the bin and,

Fig. 4 is a front elevation of the bin showing the drive mechanism schematically.

In the embodiment, the storage bin 1 is mounted on any suitable supporting structure in front of and above the furnace, which structure may consist of a base 2 having suitable legs 3. The furnace may be any of the commercial furnaces provided with a boiler 4 and a firepit 5. The material from the bin 1 is fed into the firepit 5 in accordance with the steam demands.

This bin 1 may be of any suitable construction and preferably comprises the downwardly diverging side walls and end walls 6 which are preferably suitably braced by angles 7.

For feeding the material to the furnace, the bottom of the bin is provided with a plurality of screw conveyors 8 arranged side by side and in such proximity to one another that they practically cover the entire bottom of the bin and which as shown in Fig. 3 are threaded right and left. These conveyors are driven in unison by a series of interconnected gears 9 so that they move in unison or may be, if desired, driven in a series of groups. The conveyors move the material forward, from the bottom, into hoppers 11 located beneath the forward end of the bin and beneath a delivery opening 12 extending across the bottom thereof. In the present instance, we have shown two hoppers, although if desired, only one may be provided, or if desired more than two may be provided. Each hopper, at its bottom, is provided with a screw conveyor 13 which will move the material forward in the hopper to the delivery spout 14 terminating in the firepit. Located in this delivery spout is a rotary feeder 15, and each delivery spout may have a plurality of branches 16, as shown in Fig. 2.

Due to the fact that the screw conveyors 8 cover practically the entire bottom of the bin, the material is fed forwardly across the entire bottom and thereby the entire mass of material in the hopper is kept more or less agitated preventing the arching of the massed material so that, the whole body of the material will drop as the material is removed from the bottom of the mass, the continuous feeding of the material is thereby maintained.

The feeding of the material is controlled by the speed at which the screw propellers 8 are driven and this speed is controlled by the boiler pressure. To this end, we provide a variable speed transmission 17 driven by a suitable power motor and in turn driving by means of the chain connections 18, the various screw propellers. This variable speed transmission may be of the type commonly known in the commercial art as the "Reeves"

variable speed transmission is shifted in accordance with the steam pressure in the boiler by a pressure control mechanism 19 connected with the boiler in any suitable manner.

5 I claim as my invention the following:

1. A refuse storage bin having a substantially flat bottom provided with a delivery opening extending substantially across the flat bottom of the bin, and means for feeding
10 the material in the bin across the bottom of the bin toward said opening, comprising a plurality of parallel closely adjacent screw conveyors arranged in a plane parallel to and above the bottom of the bin and forming the
15 sole support for the material, whereby the coacting blades of adjacent screw conveyors produce a constant agitation of the material in the lower portion of the bin.

2. A refuse storage bin having a substantially flat bottom provided with a delivery opening extending substantially across the flat bottom of the bin, and means for feeding
20 the material in the bin across the bottom of the bin toward said opening, comprising a plurality of agitating alternately right and left threaded screw conveyors arranged in a plane parallel to and above the bottom of the bin and forming the sole support for the material, whereby the coacting blades of the ad-
25 jacent screw conveyors produce a constant agitation of the material in the lower portion of the bin.

In witness whereof, we have hereunto set our hands at Indianapolis, Indiana, this 30th
35 day of December, A. D. one thousand nine hundred and twenty-nine.

NICK T. PUCKETT.
MAURICE A. HOFFT.
WALTER M. SQUIRES.

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