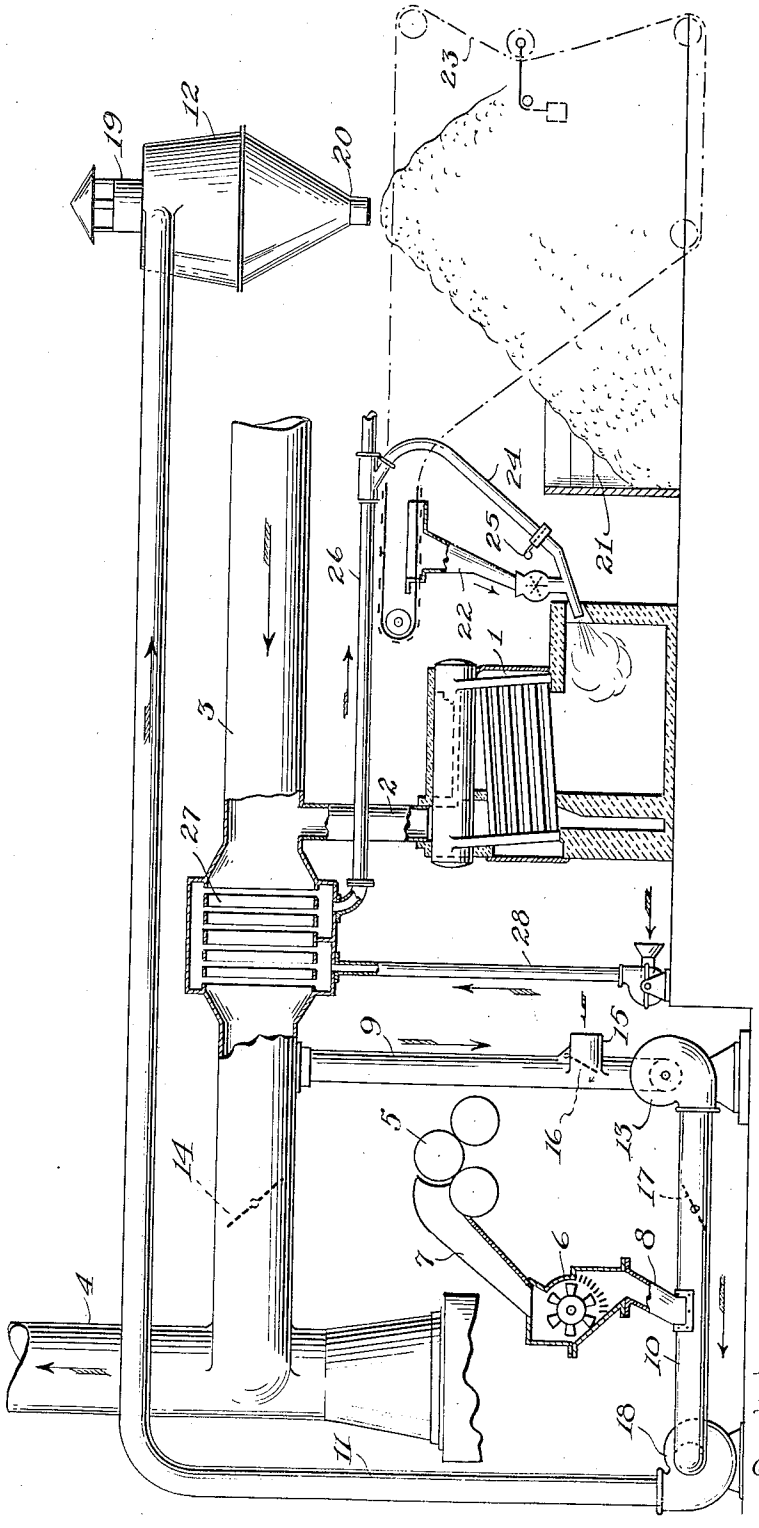
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APPARATUS FOR PREPARING AND BURNING BAGASSE AND THE LIKE

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APPARATUS FOR PREPARING AND BURNING BAGASSE AND THE LIKE

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The present invention relates to a new and improved apparatus for preparing, storing, feeding and burning pulverized or shredded fuel such as bagasse, hogged wood, tan bark, lignite or other materials having high percentages of moisture, and one of the objects of the invention resides in the general improvement of the apparatus now in use in sugar mills and like factories.

One of the principal objects of the present invention consists in the provision of a new and improved apparatus whereby the bagasse or other fuel may be dried after passing through the shredder and may then be stored away until such time as it is to be fed to the furnace, at which time it may be mechanically delivered to the furnace in such condition that it will be entirely consumed in the combustion chamber thus obtaining the maximum efficiency of the fuel. To this end it is an object of the invention to provide an arrangement of parts by which properly regulated and diluted flue gases shall be used for floating the previously shredded bagasse or the like from the shredder to a separator where the gases are separated from the dried fuel.

Other objects and advantages of the invention will be apparent from the following description when taken in connection with the accompanying drawing; in which

The figure illustrates the final rolls of a sugar mill associated with a shredder, drier, separator, furnace and related parts, all of which are shown more or less diagrammatically.

Referring to the drawing in greater detail the numeral 1 designates a furnace provided with a flue 2 connected to a main flue 3 which may be and preferably is connected with a number of similar furnaces, and the flue continues to a stack or chimney 4 in the usual manner.

The present invention is more especially adapted for use in sugar mills, and the drawing therefore show the apparatus as associated with the final rolls 5 of such a mill. The numeral 6 indicates a shredder of comminutor of any preferred type, and a chute 7 serves to carry the bagasse from the rolls 5 to the shredder. The material having passed through the shredder is conducted by the discharge pipe 8 to a conduit carrying hot gases by which the material is dried and floated to a separator to be later described.

The conduit referred to is indicated by the numerals 9, 10 and 11, the section 9 being connected to the flue 3 and the section 11 leading to the separator 12. For the purpose of drawing the hot gases from the flue 3 a blower or fan 13 is disposed between the sections 9 and 10 of the conduit and a damper 14 in the flue 3 serves to regulate the amount of waste gases which may be drawn off by the blower. Also associated with conduit 9 is an inlet 15 for the admission of atmospheric air, the amount of air to be admitted being regulable by the adjustable flap 16. Through the medium of the elements 15 and 16 it will be obvious that the temperature of the gases passing to the blower 13 and to the feeder 8 is readily controlled. It is also desirable if not absolutely necessary to regulate the pressure of the hot gases at the point of discharge of the feeder 8, and to this end a damper is placed in the conduit 10 between the blower 13 and the feeder 8. By suitably adjusting the damper or valve 17 it will be apparent that the pressure of the gases in the conduit may be varied at will. Ordinarily a pressure slightly below atmospheric pressure is preferable and this pressure is obtained by the valve 17 in conjunction with a second blower which will now be described.

Disposed between conduits 10 and 11 is a blower 18 which provides the double function of drawing the hot gasses and bagasse through the conduit section 10 and driving the same through the section 11 to the separator 12. By suitably regulating the speed of the blower 18 and the position of the valve 17 it will be seen that the pressure in section 10 may be fixed as desired.

The material being acted upon continues to be dried as it is floated through section 11 to the separators 12 and upon reaching the latter the furnace gases will pass upwardly

through pipe 19 and the completely dried and shredded fuel will pass through the discharge chute 20 to a storage bin 21 where it will remain until such time as it is to be fed to the combustion chamber of the furnace 1.

In some types of sugar mills it is unnecessary that the bagasse be shredded after leaving the final rolls of the mill and in such installations the shredder 6 may be omitted and the material may be fed directly from the rolls 5 to the conduit 10 by the feed pipe 8.

The prepared fuel stored in the bin 21 is carried to the feed hopper 22 for the furnace by means of any conventional type of conveyor 23; and combustion of the fuel is facilitated by the injection of hot air into the burners. This air is carried to the burners by means of a pipe 24 provided with a damper 25; the pipe getting its supply of pre-heated air from the main supply pipe 26 which connects with a heater 27 in the main flue 3. Also associated with the heater 27 is a pipe 28 provided at its opposite end with a blower 29 by means of which atmospheric air is driven through the heater and thence to pipe 26 and the burners of the furnace.

The operation of the several elements of the novel apparatus have been fully described in connection with the description of the structural details of the apparatus and it is not deemed necessary to repeat such operation here, it being sufficient to state that the bagasse leaving the rolls of the mill is passed through a shredder (where necessary), is subjected to the heat of waste gases from the furnace, the temperature and pressure of which have been properly adjusted, is then floated to a separator where the gases are caused to separate and rise from the prepared fuel, the latter being then passed to a storage bin for future use.

From the foregoing description taken in connection with the accompanying drawing it will be observed that I have devised a novel apparatus for treating wet fuels such as bagasse and the like, which is extremely simple and economical in operation, which uses the waste gases of the furnace for drying the material, which avoids choking or reducing the efficiency of the furnace by completely separating such gases from the treated material before directing the same to the storage bins.

In accordance with the patent statutes I have described what I now believe to be the best embodiment of the invention, but I do not wish to be understood thereby as limiting myself or the scope of the invention, as many changes and modifications may be made without departing from the spirit of the invention; all such I aim to include in the scope of the appended claims.

What I claim as new and desire to secure by Letters Patent is:

1. Apparatus for preparing bagasse and the like for fuel, including means for shredding the material, a separator, a furnace, a conduit leading from the flue of the furnace through the discharge of the shredding means to the separator, blowers associated with said conduit on opposite sides of the shredding means, regulable means for admitting atmospheric air to said conduit on the flue side of the first blower, and means intermediate the first blower and shredding means for regulating the pressure in the conduit at the point of contact of the hot gases with the shredded material.

2. Apparatus for preparing bagasse and the like for fuel, including a shredder, a separator, a furnace, a conduit leading from the flue of the furnace through the discharge of the shredder to the separator, means for regulating the amount of waste gases passing from the flue to the conduit, blowers associated with said conduit on opposite sides of the shredder, regulable means for admitting atmospheric air to said conduit on the flue side of the first blower, and means intermediate the first blower and shredder for regulating the pressure in the conduit at the shredder discharge.

3. Apparatus for preparing bagasse and the like for fuel, including a shredder, a separator, a furnace, a conduit leading from the flue of the furnace through the discharge of the shredder to the separator, means for regulating the amount of waste gases passing from the flue to the conduit, blowers associated with said conduit on opposite sides of the shredder, regulable means for admitting atmospheric air to said conduit on the flue side of the first blower, means intermediate the first blower and shredder for regulating the pressure in the conduit at the shredder discharge, a chute for directing the dried material to a storage bin, and means for conveying the prepared fuel to the furnace.

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