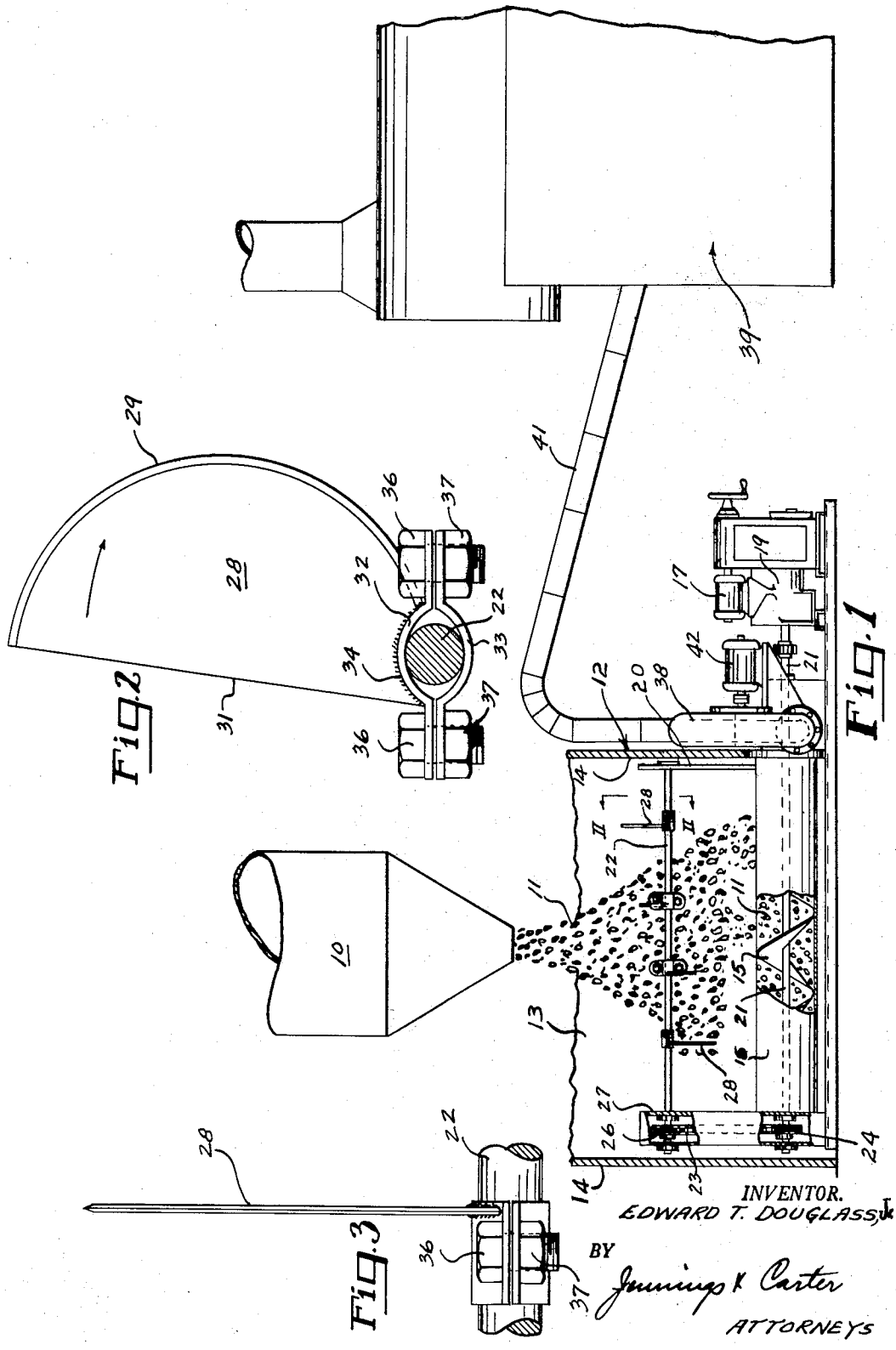
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APPARATUS FOR CONVEYING WOOD SHAVINGS AND THE LIKE

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APPARATUS FOR CONVEYING WOOD SHAVINGS AND THE LIKE

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This invention relates to apparatus for conveying wood shavings, saw dust and the like and has for an object the provision of such apparatus which shall be effective to deliver an even uninterrupted flow of such materials.

Another object of my invention is to provide apparatus for conveying wood shavings and like materials to a furnace in controlled quantities thus obtaining suspension burning of the fuel and controlled results from the furnace.

A more specific object of my invention is to provide apparatus of the character designated which shall embody improved means for agitating the supply of fuel as it is being conveyed to the burner, thus preventing arching of the fuel above the conveying means.

A further object of my invention is to provide apparatus of the character designated which is simple of construction, economical of manufacture and adapted for easy installation with a minimum of alteration to the shaving house and furnace, thus permitting the furnace to be employed for burning other materials when necessary, such as slabs or blocks.

Heretofore in the art to which my invention relates various means have been devised for burning wood shavings and like materials. However, so far as I am aware, such means have not been effective to deliver an even, uninterrupted flow of fuel to the burner due to the fact that the materials being conveyed forms an arch above the conveyor. Agitators having blades in the form of straight edges are not satisfactory for the reason that the material being conveyed wraps around and packs in front of the blades thus hindering the agitators, unduly increasing the power required, and imposing an undue load on the driving motor.

Briefly my improved means for agitating the material as it is being conveyed comprises a plurality of breaker members mounted for rotation above the conveyor. Each breaker member embodies a blade having a curved edge on the leading side thereof, the curvature being such that the material being agitated slips along the edge rather than being packed in front of it.

Apparatus embodying features of my invention is shown in the accompanying drawing forming a part of this application in which:

Fig. 1 is a side elevation view, partly broken away and in section;

Fig. 2 is an enlarged detail view taken along the lines II—II of Fig. 1 and showing my improved breaker member; and,

Fig. 3 is an enlarged detail view of the breaker member.

Referring now to the drawing for a better understanding of my invention I show a cyclone separator 10 which delivers wood shavings or a similar fuel indicated at 11 to the apparatus. Mounted beneath the cyclone separator 10 in position to receive the fuel 11 is a fuel bin 12 having side walls 13 and end walls 14. Mounted in the lower portion of the bin 12 is a conveyor trough 16 having a screw conveyor 15 therein which is driven

by a motor 17 through a gear reducer 19 and a drive shaft 21. Positioned directly above and substantially parallel to the screw conveyor 15 is a shaft 22 which is rotatably mounted at one end in suitable bearings on a vertically extending support member 20. The other end of the shaft 22 is rotatably supported in suitable bearings mounted on a vertical housing 27. The shaft 22 is driven by a chain drive 23 which passes over sprocket members 24 and 26 fixedly mounted adjacent the ends of the shafts 21 and 22 respectively. The drive chain 23 and the sprockets 24 and 26 are encased by the housing 27, thus preventing foreign materials from coming in contact herewith.

Fixedly secured to the shaft 22 are a plurality of breaker members 28. Each breaker member embodies a rigid blade having a curved or arched-shaped leading edge 29. The trailing edge 31 of the blade may be of any suitable shape and is shown here as being straight. The breaker members 28 are each fixedly secured to the shaft 22 by means of a pair of clamp members 32 and 33, the clamp member 32 being secured to the blade by any suitable means such as by welding at 34. The clamping members are secured to the shaft 22 by means of bolts 36 having nuts 37. As shown, the clamping members are elliptical in shape and the shaft 22 upon which they are mounted is round in cross section. I have found that by this means I provide a better grip on the shaft. At the same time, in event an obstruction is encountered the clamping members may turn on the shaft. As shown by the arrow in Fig. 2 of the drawing, the breaker members 28 rotate toward the curved leading edge 29. That is, each breaker member rotates in a direction for the curved edge 29 thereof to first contact the material being conveyed. The leading edge 29 may, if desired, be sharpened.

By providing a curved surface on the leading edge of the blade there are an infinite number of points on the blade which pass through a given plane at different times upon rotation of the blade. Whereas if the leading edge of the blade were in the form of a straight line, all points thereon would pass through a common plane at the same time, thus permitting the material being agitated to cling thereto. That is, by providing a curved leading edge for the rotating blade the inner portion thereof first contacts a given plane passing radially through the shaft. Then, as the blade continues to rotate, the outer portions thereof reach progressively the given plane until the entire edge passes therethrough. The material thus tends to move outwardly along the curved edge 29 as the blade rotates. Also, due to the fact that only a small portion of the curved edge contacts the material lying in a given plane at a time there is no appreciable build up of material thereon, thereby permitting the same to be dislodged as the blade rotates.

Mounted at the discharge end of the screw conveyor 15 is a rotary blower 38 driven by a motor 42 and which conveys the fuel 11 through a conduit 41 to a furnace indicated generally at 39. The rotary blower 38 is of the high pressure type, and provides primary air for combustion, as well as conveying the fuel to the furnace.

From the foregoing it will be seen that I have devised an improved means for introducing an even, uninterrupted flow of wood shavings or like materials to a furnace. My improved agitator serves to insure an even feed of fuel to the screw conveyer 15 and the latter to the blower 38. By providing an even flow of fuel with sufficient air for complete combustion, I not only reduce smoke to a minimum but obtain maximum results from the furnace. Furthermore, furnace volume is utilized to a maximum due to suspension burning of the fuel as it enters the furnace. It will also be seen that my improved agitators might be employed in the handling of materials other than fuel.

While I have shown my invention in but one form, it will be obvious to those skilled in the art that it is not so limited, but is susceptible of various changes and modifications without departing from the spirit thereof, and I desire, therefore, that only such limitations shall be placed thereupon as are specifically set forth in the appended claims.

What I claim is:

1. The combination with a bin having a conveyor in the lower portion thereof, of a plurality of rigid breaker members mounted yieldingly on a shaft for rotation in said bin, each having a curved edge along the leading side thereof.

2. In apparatus for agitating wood shavings and like materials as the same are being conveyed by a conveyor, a shaft mounted for rotation above said conveyor and lying substantially parallel thereto, and at least one relatively flat rigid blade yieldingly mounted on said shaft with the flat sides thereof extending in planes substantially normal to said shaft and having a curved leading edge.

3. In apparatus for agitating wood shavings and like materials as the same are being conveyed by a screw type conveyor, a shaft mounted for rotation above said screw

conveyor and lying substantially parallel thereto, a plurality of longitudinally spaced, relatively flat rigid blades yieldingly mounted on said shaft with the flat sides thereof extending in planes substantially normal to said shaft and having curved leading edges.

4. In apparatus for agitating wood shavings and like materials as the same are being conveyed, a screw type conveyor, a round shaft mounted for rotation above said conveyor and lying substantially parallel thereto, longitudinally spaced pairs of elliptical clamps mounted yieldingly on said shaft, and relatively flat rigid blades fixedly secured to said clamps and having curved leading edges.

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