

UNITED STATES PATENT OFFICE

JOSEPH OSWELL BAILEY, OF ATLANTA, GEORGIA

SPRAY CONVEYER

Application filed March 8, 1929. Serial No. 345,539.

Generically this invention relates to conveyers, but it is more especially directed to the spiral continuous flight type having means for effecting thorough treatment of the product being conveyed with vapors or liquids on the one hand and cooling or drying such product in transit on the other, as the particular necessities may require.

A principal object of this invention is the provision of a continuous flight spiral conveyer having a hollow shaft formed with a plurality of perforations spirally extending throughout the length of the shaft to effect ready application of vapors, liquids or air to the product while in process of being conveyed.

Another important object of this invention is the provision of a conveyer having a hollow shaft formed with a spiral line of liquid or air jets communicating with the interior of the shaft and extending above the exterior surface thereof through the medium of which the product may be additionally agitated and simultaneously treated with water or other liquids, steam or other vapors, or hot or cold air, as the particular exigencies of the occasion may require.

A still further object of this invention is the provision of a plurality of spaced air or water jets extending above the surface of the shaft in a spiral line opposite to the direction of the spiral conveyer blade, so as to effect additional agitation and complete vaporization or aeration of the product during its course of conveyance.

With these and other objects in view, which will become apparent as the description proceeds, the invention resides in the construction, combination and arrangement of parts, hereinafter more fully described and claimed, and illustrated in the accompanying drawings, in which like characters of reference indicate like parts throughout the several figures, of which:

Fig. 1 is a view in elevation of a section of my improved spray conveyer showing the spiral line of air vapor or liquid jets extending in a spiral direction opposite that of the conveyer blade;

Fig. 2 is a modified form of the device

illustrated in Fig. 1, showing the line of jets extending in the same spiral direction as the conveyer blade and in parallelism therewith.

Figure 3 is a transverse section through the shaft and a nozzle.

The type of conveyers adapted for moistening or drying the product being conveyed have proven unsatisfactory and deficient, in that, in such devices with which I am familiar many of the perforations in the shaft frequently become clogged by certain moist materials, thereby reducing the effectiveness of the treatment, and in other instances, the product owing to insufficient agitation intermediate the conveyer blade sections prevents thorough treatment of the product; and it was to overcome such deficiencies, and to provide a spray conveyer having a line of spiral liquid vapor or air jets extending above the surface of the shaft intermediate the conveyer blade in a spiral line spiralling the shaft in a direction opposite to that of the conveyer blade, thereby effecting a loosening of the product adjacent the inlet openings preventing clogging of said openings and not only effecting a further agitation of the product, but effecting a thorough saturation thereof by the liquid vapor or air in its course of application thereto, that I designed the spray conveyer forming the subject matter of this invention.

In the illustrated embodiment characterizing this invention there is shown a hollow shaft 5 having a continuous flight spiral conveyer blade 6 suitably mounted thereon, and a continuous line of spaced perforations 7 of a corresponding length with that of the conveyer blade and extending in a spiral line in a direction opposite to that of the blade 6. In each perforation is adapted to be threadedly or otherwise suitably mounted a hollow jet 8 communicating with the interior of the shaft and extending at right angles to the shaft and above the surface thereof, constituting auxiliary agitating means, as well as mediums for the interjection of water or other liquids, steam or other vapors and hot or cold air to the material being conveyed, depending upon the particular requirements and as and for purposes hereinafter more fully appearing.

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