

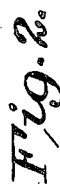
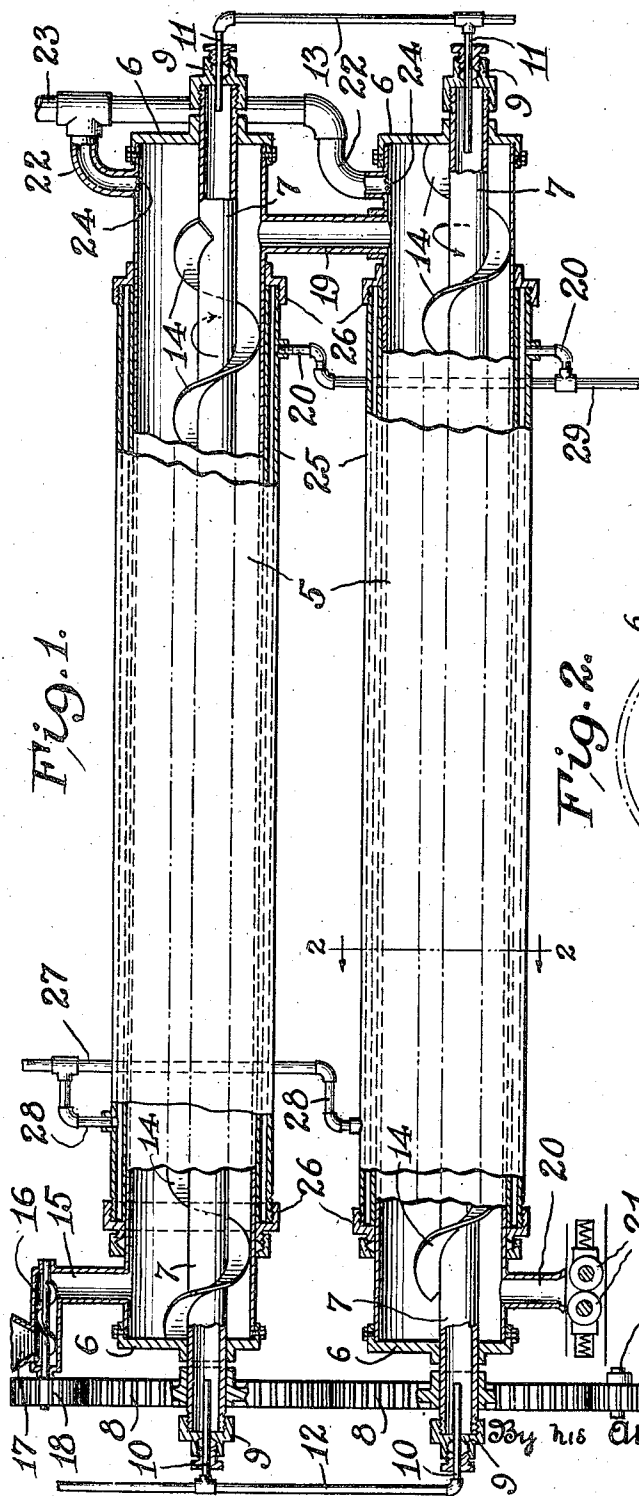
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P. J. HARE

STEAM JACKETED CONVEYER

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Inventor
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UNITED STATES PATENT OFFICE.

PATRICK J. HARE, OF NEW YORK, N. Y.

STEAM-JACKETED CONVEYER.

Application filed December 3, 1921. Serial No. 519,693.

To all whom it may concern:

Be it known that I, PATRICK J. HARE, a citizen of the United States, and residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Steam-Jacketed Conveyers, of which the following is a specification, such as will enable those skilled in the art to which it appertains to make and use the same.

This invention relates to conveyers and particularly to apparatus of this class designed for the treatment of various kinds of fertilizers, particularly offal from animals, and the object of the invention is to provide a conveyer of the class and for the purpose specified composed of two or more conveyer tubes coupled together and in communication one with the other whereby the product to be treated may be passed through one of said tubes, discharged into another and passed through the last named tube etc., a further object being to provide internal and external steam jackets for the conveyer tubes whereby the product passed or carried there-through may be effectively heated or treated; and with these and other objects in view the invention consists in an apparatus of the class and for the purpose specified which is simple in construction and operation and efficient in use and which is constructed and operated as hereinafter described and claimed.

The invention is fully disclosed in the following specification, of which the accompanying drawing forms a part, in which the separate parts of my improvement are designated by suitable reference characters in each of the views, and in which:—

Fig. 1 is a side view of a complete apparatus with parts of the construction broken away and in section; and,

Fig. 2 a partial section on the line 2—2 of Fig. 1.

In practice, I provide a plurality of similarly formed conveyer tubes 5 preferably mounted one above another and supported in any desired manner, said tubes being provided with end caps 6 in which are mounted and through which are adapted to pass tubular shafts 7, which project beyond the end caps 6 and are provided at one end with gears 8, the gears of the separate tubes 5 meshing with each other as clearly shown in Fig. 1, and at the ends of the shafts 7 are stuffing boxes 9 through which steam

supply pipes 10 and discharge pipes 11 are passed, the supply pipes 10 being connected with the steam supply 12; while the pipes 11 are connected with a steam discharge pipe 13.

The tubular shaft 7 is provided within the tubes 5 with screw or conveyer blades 14 of the usual or any preferred form and construction, and these blades extend from one end plate 6 to the other end plate 6 of the tube 5.

At one end portion of the conveyer tube 5 is an intake pipe or tube 15 provided with a conveyer 16 and a hopper 17, the conveyer 16 being rotated by a gear or pinion 18 which meshes with the gear 8 on the tubular shaft of the upper conveyer tube, and by means of this construction fertilizing or other material may be fed into one end portion of the upper tube 5, and said material is conveyed to the other end portion of said tube by the blades 14 on the tubular shaft 7 thereof, and it will be noted that the conveyer is mounted and operates in the lower portion of the tube 5 only, as clearly illustrated in Fig. 2 of the drawing, and are adapted to be operated in any desired manner. At the last named end portion of the upper tube 5 is a downwardly directed discharge pipe 19 through which the material passed through said tube is adapted to drop into the corresponding end portion of the tube 5 next below said first named tube, and said material is conveyed to the opposite end portion of the last named tube by the blades 14 of the tubular shaft 7 and is discharged through a discharge pipe or tube 20 and is adapted to pass between spring-operated rollers 21 into a suitable receiver. The rollers 21 operate to grind, crush or compress the material as it is discharged from the last named tube 5.

At one end of the separate tubes 5 are suction pipes 22 which communicate with the top portions of said tubes, as clearly shown in Fig. 1 and are joined with a main suction pipe 23 which passes to a suitable fan or other suction element whereby a partial vacuum may be created in the tubes 5 and screens 24 are preferably employed in the pipes 22, where they open into the tubes 5.

Mounted on and encircling the tubes 5 are steam jackets 26 sealed at their ends by stuffing boxes 25 as clearly shown in Fig. 1 of the drawing, and a steam supply pipe 27

is placed in communication with the steam jackets 25 of the separate tubes 5 through branch pipes 28 and a steam discharge pipe 29 is similarly placed in communication with the steam jackets 25 through branch pipes 30 and the pipes 27 and 29 may communicate with or be coupled with the pipes 12 and 13 respectively, if desired, whereby steam from a common source may pass to the steam jackets 25 and tubular shafts 7 and be discharged through a common discharge or exhaust pipe from said steam jackets and tubular shafts.

In Fig. 1 I have also shown a gear or pinion 31 in operative connection with the gear 8 mounted upon the tubular shaft 7 of the bottom tube 5, and this gear or pinion is mounted on a suitable shaft 32 which may be driven by an electric motor or any other suitable means to operate my improved apparatus. It will also be apparent that by providing the internal and external steam jackets, the product as it passes through, or as it is conveyed through the tubes 5 will be effectively heated or treated, and while I have shown but two of the tubes 5, it will be understood that any desired number of such tubes may be employed, and other changes in and modifications of the construction herein shown and described may be made, within the scope of the appended claims, without departing from the spirit of my invention or sacrificing its advantages.

Having fully described my invention, what I claim as new and desire to secure by Letters Patents, is:—

1. An apparatus of the class described comprising a conveyer tube, a tubular shaft rotatably mounted therein and provided with a screw blade of less diameter than said tube, and the axis of said shaft being below the axis of said tube, means for admitting material to be treated into one end portion of said tube, means for discharging said material from the other end thereof, and means for passing steam through said tubular shaft.

2. An apparatus of the class described comprising a conveyer tube, a tubular shaft rotatably mounted therein and provided with a screw blade of less diameter than said tube, and the axis of said shaft being below the axis of said tube, means for admitting material to be treated into one end portion of said tube, means for discharging said material from the other end thereof, means for passing steam through said tubular shaft, and a steam jacket encircling said conveyer tube.

3. An apparatus of the class described comprising a conveyer tube, a tubular shaft rotatably mounted therein and provided with a screw blade of less diameter than said tube, and the axis of said shaft being below the axis of said tube, means for admitting material to be treated into one end portion of said tube, means for discharging said material from the other end thereof, means for passing steam through said tubular shaft, a steam jacket encircling said conveyer tube, means for rotating said tubular shaft, and a feed device for feeding material through said first named means.

4. An apparatus of the class described comprising a conveyer tube, a tubular shaft rotatably mounted therein and provided with a screw blade of less diameter than said tube, and the axis of said shaft being below the axis of said tube, means for admitting material to be treated into one end portion of said tube, means for discharging said material from the other end thereof, means for passing steam through said tubular shaft, a steam jacket encircling said conveyer tube, means for rotating said tubular shaft, a feed device for feeding material through said first named means, and a secondary pipe in communication with one end portion of said tube.

In testimony that I claim the foregoing as my invention I have signed my name this 30th day of November 1921.

PATRICK J. HARE.