No. 719,406. PATENTED JAN. 27, 1903.

F. G. WOLFE.

DRAINAGE CONVEYER TROUGH.

APPLICATION FILED DEC. 2, 1902.

NO MODEL.

Fig. 1.

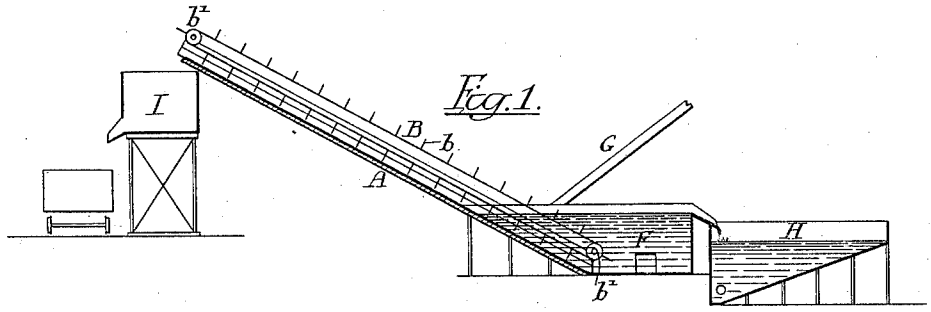


Fig. 2.

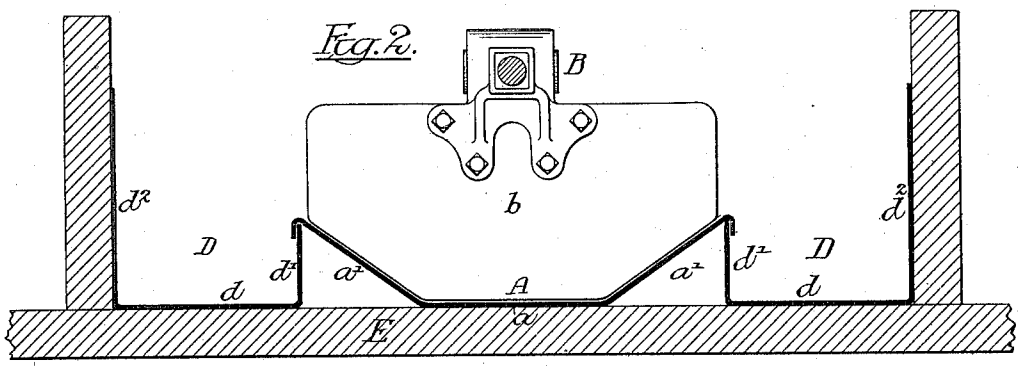
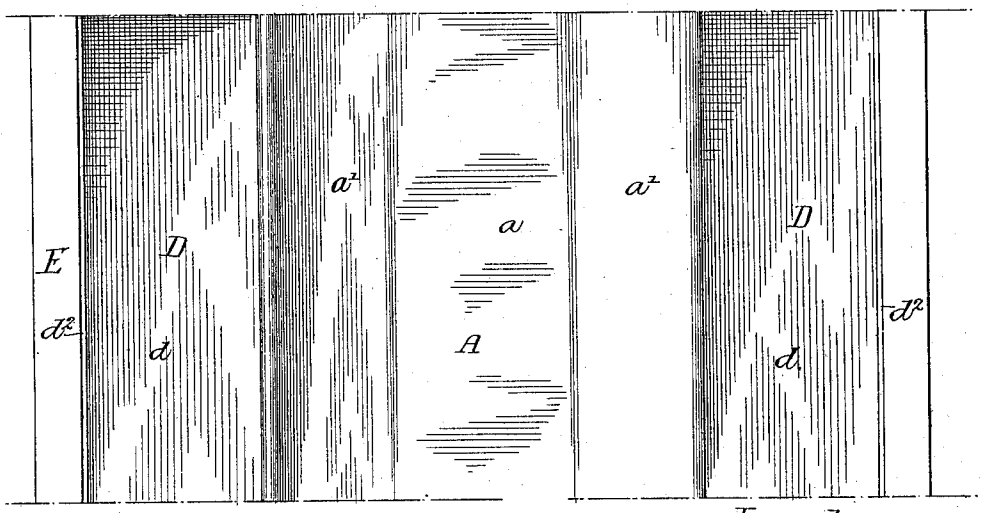


Fig. 3.



Witnesses:-

Frank L. A. Graham

Wm. A. Barr

Inventor:-

Frank G. Wolfe,

by his Attorneys

Howson & Howson

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

FRANK G. WOLFE, OF SCRANTON, PENNSYLVANIA, ASSIGNOR TO THE LINK BELT ENGINEERING COMPANY, OF PHILADELPHIA, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

DRAINAGE CONVEYER-TROUGH.

SPECIFICATION forming part of Letters Patent No. 719,406, dated January 27, 1903.

Application filed December 2, 1902. Serial No. 133,603. (No model.)

To all whom it may concern:

Be it known that I, FRANK G. WOLFE, a citizen of the United States, and a resident of Scranton, Pennsylvania, have invented certain Improvements in Drainage Conveyer-Troughs, of which the following is a specification.

The object of my invention is to separate liquid from solid matter during its transfer from one point to another through a trough of a conveyer either of the flight, screw, or other form. This object I attain by so constructing the chute as to provide a passage on one or both sides of the chute, so that the liquid will overflow from the conveying-chute into the side passages as the material is being conveyed.

My invention is especially applicable for use in the transfer of fine refuse culm from the washeries to the refuse-bank.

In the accompanying drawings, Figure 1 is a diagram view illustrating a refuse-culm-discharging apparatus. Fig. 2 is an enlarged sectional view of the conveyer-trough. Fig. 3 is a plan view of Fig. 2.

I will explain my invention in connection with the transfer of waste culm, as the main object of my invention is to provide an apparatus for conveying such material. In conveying the refuse culm from the washeries the usual practice is simply to discharge the refuse material and the water into a boot-tank, and from the boot-tank the material is conveyed by an endless-belt flight conveyer and discharged into the waste-tank at the outer end of the conveyer. A large amount of water is carried in the conveyer as it emerges from the boot and as the flights ascend the water descends and flows down the conveyer-trough, washing and carrying with it the fine dirt and culm back into the boot-tank, where it settles until the conveyer-line is blocked. The water and fine dirt must then be drawn off from the boot, if the conditions will allow, or the dirt must be shoveled out, which entails considerable expense and loss of time. If it is drawn out from the boot by a gate, it is only a short time when all the available area will be filled level with the bottom of the boot-tank and must eventually be shoveled from the tank. By my invention I separate the water from the refuse culm as soon as possible after leaving the boot, so that the water will not flow back over the material being conveyed and will therefore not wash it back into the boot.

Referring to the drawings, A is the trough of a conveyer.

B is an endless-belt conveyer having flights b. This belt passes around wheels b' at each end, and one of these wheels may be the driving-wheel for imparting motion to the conveyer. While I have shown a flight conveyer, it will be understood that a screw conveyer or any well-known substitute for the flight can be used without departing from my invention.

The trough A, as shown in Fig. 2, has a base a and inclined sides a', and adjoining the trough at each side in the present instance are channels D D, having base portions d and sides d' d^2, the whole fitting within a box E. The sides d^2 are in the present instance much higher than the sides a' of the trough A.

F is the boot-tank of the conveyer, into which the culm and water is discharged from the washing apparatus through a chute G or other suitable device.

H is a settling-tank of any suitable form into which the overflow from the boot-tank F discharges, and this settling-tank can be discharged into a ditch or may be conveyed by other means to the main waste-channel.

I is a bin into which the conveyer discharges the material, and this bin may be either mounted so that it can readily discharge into cars or boats or the bin may be dispensed with and the waste material may simply be discharged onto a pile.

The conveying apparatus may be stationary, as shown, or may be pivoted in any well-known manner, so as to discharge the material over a given area.

The waste culm and water from the washeries is discharged through the trough G into the boot-tank F, and it is then conveyed by means of the endless-belt conveyer B up the trough A. In conveying the material up the trough a large amount of water is carried with it, and this water by the action of the conveyer is separated from the solid material

and flows over the inclined sides a' of the central trough A into the side channels D D, where it flows back into the boot-tank F in the present instance, although it may be carried away from the boot-tank in some instances, if found desirable. The immediate separating of the water from the waste culm prevents it flowing back over the material being conveyed in the trough A, so that only a small percentage of dirt is carried back with it and is constantly kept in motion by the action of the conveyer and does not accumulate. The overflow of the water from the boot-tank is discharged into the settling-tank H and is eventually discharged into a ditch or conveyed to the main waste-channel, which may be a creek or river.

In some instances instead of having the channels D D on each side of the trough A a single channel on one side of the trough may be used, and the shape of the conveyer-trough, as well as the channels, will depend largely on the type of conveyer used.

While I have described my invention as especially applicable to conveying waste culm from washeries, it will be understood that it can be used for conveying any material in which solids are mixed with liquid and where it is desirable to separate the liquids from the solids.

I claim as my invention—

1. The combination of a conveyer-trough, a conveyer therein, and means for collecting the liquid escaping over the sides of the trough, substantially as described.

2. The combination of a conveyer-trough, means for conveying material through the trough, and a passage at the side of the trough for the escape of liquid from the trough, substantially as described.

3. The combination of a conveyer-trough, means for conveying material therein, and a passage on each side of the trough for the escape of liquid separated from the material being conveyed in the trough, substantially tially as described.

4. The combination of a boot-tank, an inclined trough extending from the boot-tank, an endless conveyer for conveying material from the boot-tank up the inclined portion, a passage running parallel with the trough and separated therefrom by the low side of the trough so that the liquid will be separated from the solid while being conveyed up the trough, the liquid flowing down the side passage, substantially as described.

5. The combination of a boot-tank, means for discharging liquid having solids in suspension, an inclined trough, a passage on each side of the trough, an endless-belt conveyer carrying material up the trough from the boot-tank, the liquid being separated from the solid material as it is conveyed up the trough and flowing back into the boot through the side passage, with a settling-tank communicating with the boot-tank, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

FRANK G. WOLFE.

Witnesses:

MILTON W. LOWRY,

M. M. GURRELL.