April 25, 1939. A. D. SINDEN 2,155,874

CONVEYER

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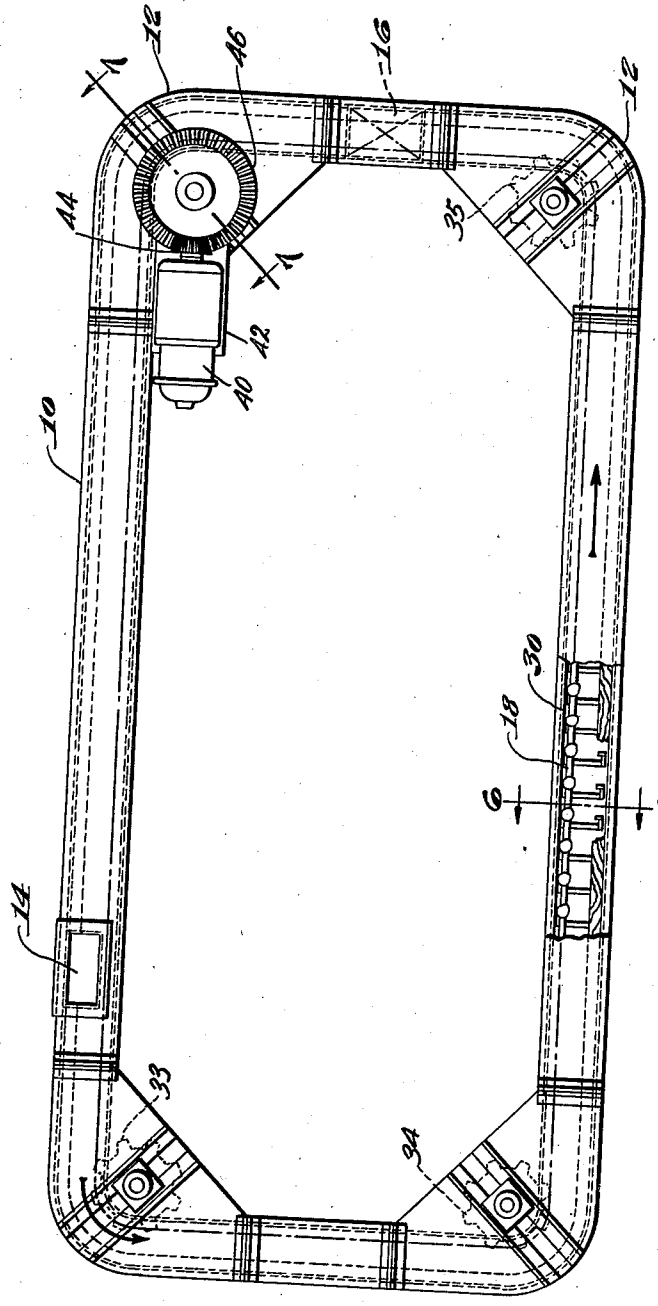


Fig. 1

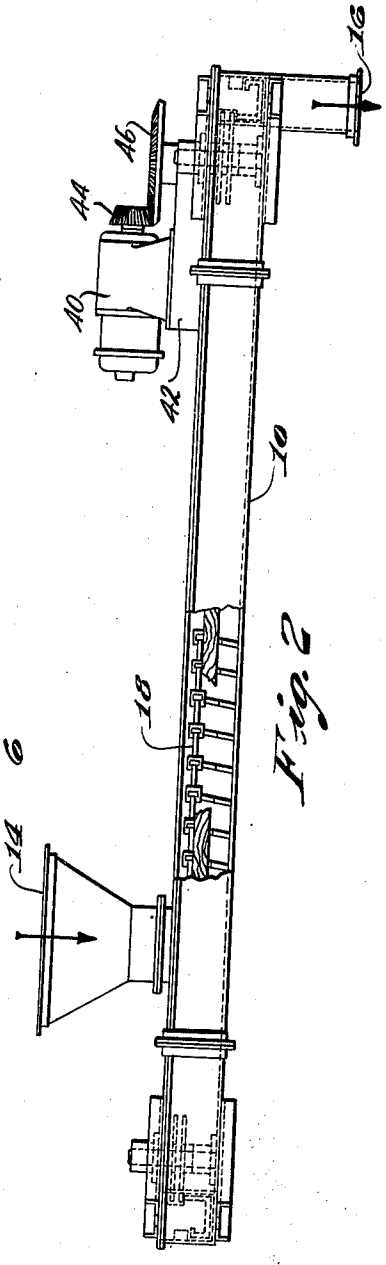


Fig. 2

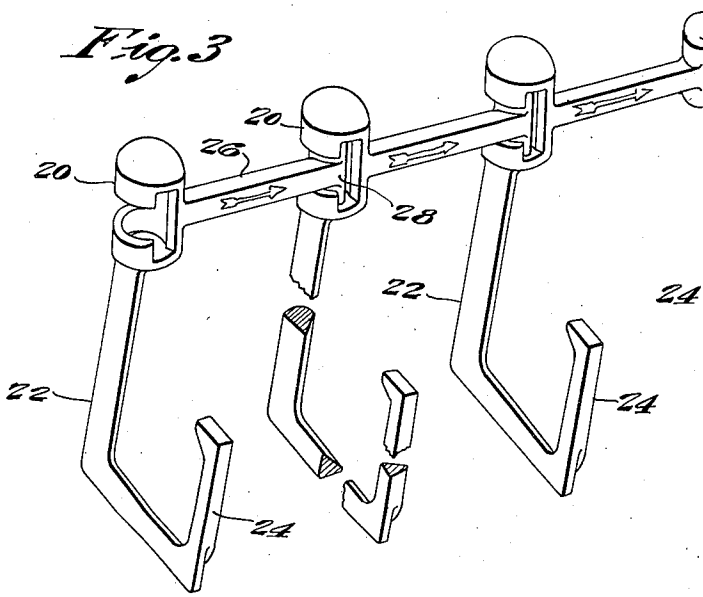
INVENTOR
Alfred Dalton Sinden
BY
J. Stanley Churchill.
ATTORNEY

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Fig. 3



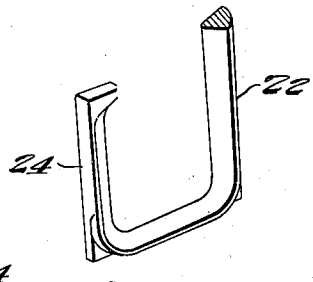


Fig. 4

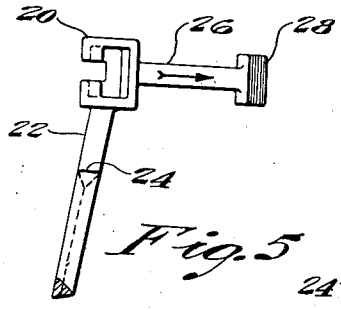


Fig. 5

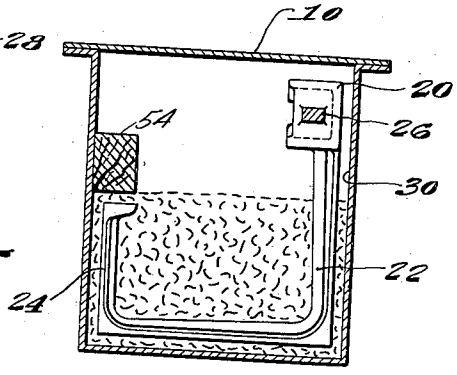


Fig. 6

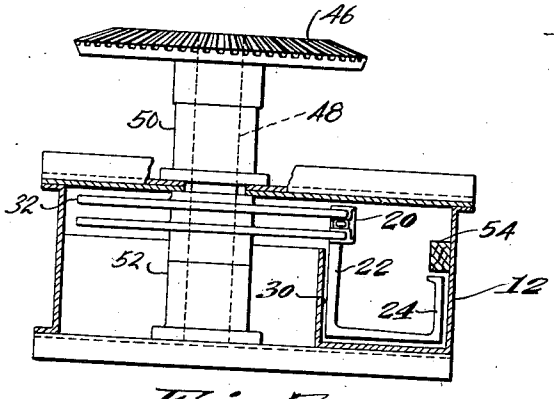


Fig. 7

INVENTOR
Alfred Hulos Sinden
BY J. Stanley Churchill.
ATTORNEY

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CONVEYER

Alfred De Los Sinden, Aurora, Ill., assignor to Redler Conveyor Company, Quincy, Mass., a corporation of Massachusetts

Application May 9, 1936, Serial No. 78,863

8 Claims. (Cl. 198—168)

This invention relates to a conveyer for conveying flowable solid material.

The object of the invention is to provide a novel and improved conveyer which is particularly adapted to convey flowable solid material and whose construction is such that it may be used efficiently to convey the material in curved paths lying substantially in the same plane.

A further object of the invention is to provide a novel and improved conveyer of the character specified whose construction is such as to maintain material being conveyed out of contact with the pivotal connection between the individual flights or links making up the conveying element of the conveyer, and further whose construction is such as to facilitate the passing of the conveyer flights over the usual sprockets by which the conveyer is driven.

In the drawings, Fig. 1 is a plan view of a conveyer, embodying the present invention, with portions broken away; Fig. 2 is a side elevation of the conveyer shown in Fig. 1; Fig. 3 is a perspective view illustrating a series of flights connected together; Fig. 4 is a perspective view of a portion of a flight; Fig. 5 is a detail in side elevation of one of the flights; Fig. 6 is an enlarged cross-sectional view on the line 6—6 of Fig. 1; and Fig. 7 is a cross-section on the line 7—7 of Fig. 1.

In general, the present invention is preferably embodied in a conveyer of the type illustrated in Redler Reissue Patent No. 18,445, in which the flowable solid material is conveyed in a continuous stream by a plurality of connected conveyer flights. In the preferred and illustrated embodiment of the invention, the conveyer comprises a casing or conduit 10 which may extend in a curved path, herein shown as extending in a general rectangular path and with the corner portions 12 curved, as illustrated. The conduit may and preferably will be provided with the usual inlet 14 and outlet 16 as illustrated. The conveyer is further provided with a conveying element 18 made up of a plurality of connected links or flights each of the construction illustrated in detail in Fig. 3, and comprising a slotted hub 20 of general cylindrical shape having a depending U-shaped flight 22 formed integrally therewith. The second leg 24 of the U-shaped flight is arranged to terminate below the slotted hub for a purpose to be described. The slotted hub 20 is further provided with an integral connecting member 26 having a boss 28 on the end thereof which is adapted to be received within the hollow hub 20 of the next succeeding flight of the conveying element 18, and the relationship between the connecting members 26 and the individual flights 22 is such that one extends at an angle to the other, so that when a series of the individual flights are connected to form the conveying element, the tension or pull transmitted through the connecting members is contiguous the wall 30 of the casing or trough which comprises the inner wall when the casing assumes a curved form and so that the U-shaped flight extends in a general transverse direction with relation to the conveyer casing 10. It is preferred that this relationship be such that the individual flights 22 are inclined downwardly and rearwardy, so that in operation the flights are dragged by the tension transmitted to them through the connecting members 26, thus reducing to a minimum vibration and noise from contact of the flight with the casing.

In the illustrated embodiment of the invention, in order to drive the conveyer, the conveying element 18 is arranged to pass around sprockets 32, 33, 34, 35 at least one of which 32 is driven from a suitable source of power, such as a motor 40, mounted on a base 42, attached to the upper section of the casing above the conveying element. The sprocket 32 is driven through bevel gears 44, 46, the latter being fixed to a vertical shaft 48 on which the sprocket 32 is secured. The shaft 48 is journaled in suitable bearings 50, 52. With the arrangement illustrated, see Fig. 7, freedom from interference with the passage of the conveyer flights around the sprockets is secured by disposing the sprockets so as to engage the hub portions 20 of the individual flights in a position above the main body of the U-shaped flight. A guide bar or runner 54 attached to the side wall of the casing is preferably employed above the leg 24 of the flight in order to maintain the flight at the proper level with respect to the material being conveyed.

During the operation of the conveyer, material is supplied to the interior of the casing through the inlet 14 and as the conveying element is drawn through the casing the material is leveled off so that the conveyer casing is only partially filled with the material being conveyed because of the fact that the second leg 24 of the U-shaped flights is disposed beneath the level of the slotted hubs 20, and as a result of this construction, during the operation of the conveyer minimum opportunity is afforded the goods to enter the slotted hubs 20, and as a result maximum freedom of pivotal movement is afforded the parts as the conveyer element is drawn around the

corners or curves in the conveyer casing. While as herein shown the conduit extends in a general rectangular path with the corner portions curved, it will be understood that the conduit may take other forms and while the preferred embodiment of the invention has been herein illustrated and described it will be understood that the invention may be embodied in other forms within the scope of the following claims.

Having thus described the invention, what is claimed is:

1. In a conveyer for conveying flowable solid material, in combination, a casing, and a conveyer element traversable therethrough, said conveyer element comprising a plurality of U-shaped open flights having corresponding vertical legs of unequal length, the longer legs being pivotally connected together substantially above the shorter legs.

2. In a conveyer for conveying flowable solid material, in combination, a casing, and a conveyer element traversable therethrough, said conveyer element comprising a plurality of U-shaped open flights having corresponding vertical legs of unequal length, and having means for connecting together the longer legs comprising connecting arms and slotted members formed integrally with said legs, said arms being provided with enlargements for fitting into said slotted members.

3. In a conveyer for conveying flowable solid material, in combination, a casing, and a conveyer element traversable therethrough, said conveyer element comprising a plurality of U-shaped open flights having corresponding vertical legs of unequal length, and means for pivotally connecting the upper portions of said longer legs together, and means cooperating with said flights for maintaining the same in predetermined vertical relation to the casing.

4. In a conveyer for conveying flowable solid material, in combination, a casing, a conveyer traversable therethrough, said conveyer comprising a plurality of open U-shaped flights having corresponding vertical legs of unequal length, means cooperating with the shorter legs for maintaining the conveyer in predetermined vertical relation to the casing, and means for pivotally connecting the longer legs above said shorter legs.

5. In a conveyer for conveying flowable solid material, in combination, a casing, and a conveyer element traversable therethrough, said conveyer element comprising a plurality of pivotally connected flight members, each comprising a transversely extended metallic U-shaped flight having corresponding vertical legs of unequal length, the longer legs being provided with an integral slotted hollow member, and a longitudinally extending integral connecting member provided with an enlargement for reception in the slotted member of the preceding flight.

6. In a conveyer for conveying flowable solid material, in combination, a casing, and a conveyer element traversable therethrough, said conveyer element comprising a plurality of pivotally connected flight members, each comprising a transversely and rearwardly extending metallic U-shaped flight having corresponding vertical legs of unequal length, the longer legs being provided with an integral slotted hollow member, and a longitudinally extending integral connecting member provided with an enlargement for reception in the slotted member of the preceding flight.

7. In a conveyer for conveying flowable solid material, in combination, a casing, and a conveyer element traversable therethrough, said conveyer element comprising a plurality of pivotally connected flight members, each flight member being open and extended transversely of the casing and being inclined rearwardly, and pivotally connected to adjacent flights at one side thereof.

8. In a conveyer for conveying flowable solid material, in combination, a casing, a conveyer traversable therethrough, said conveyer comprising a plurality of open flights, each flight being extended transversely of the casing and being inclined rearwardly, and means for pivotally connecting said flights together at a substantial distance above the normal level of the material being conveyed.

ALFRED DE LOS SINDEN.