

M. C. SCHWAB.
PACKAGE CONVEYER.

APPLICATION FILED NOV. 2, 1904. RENEWED MAY 9, 1908.

946,880.

Patented Jan. 18, 1910.

2 SHEETS—SHEET 1.

Fig. 1

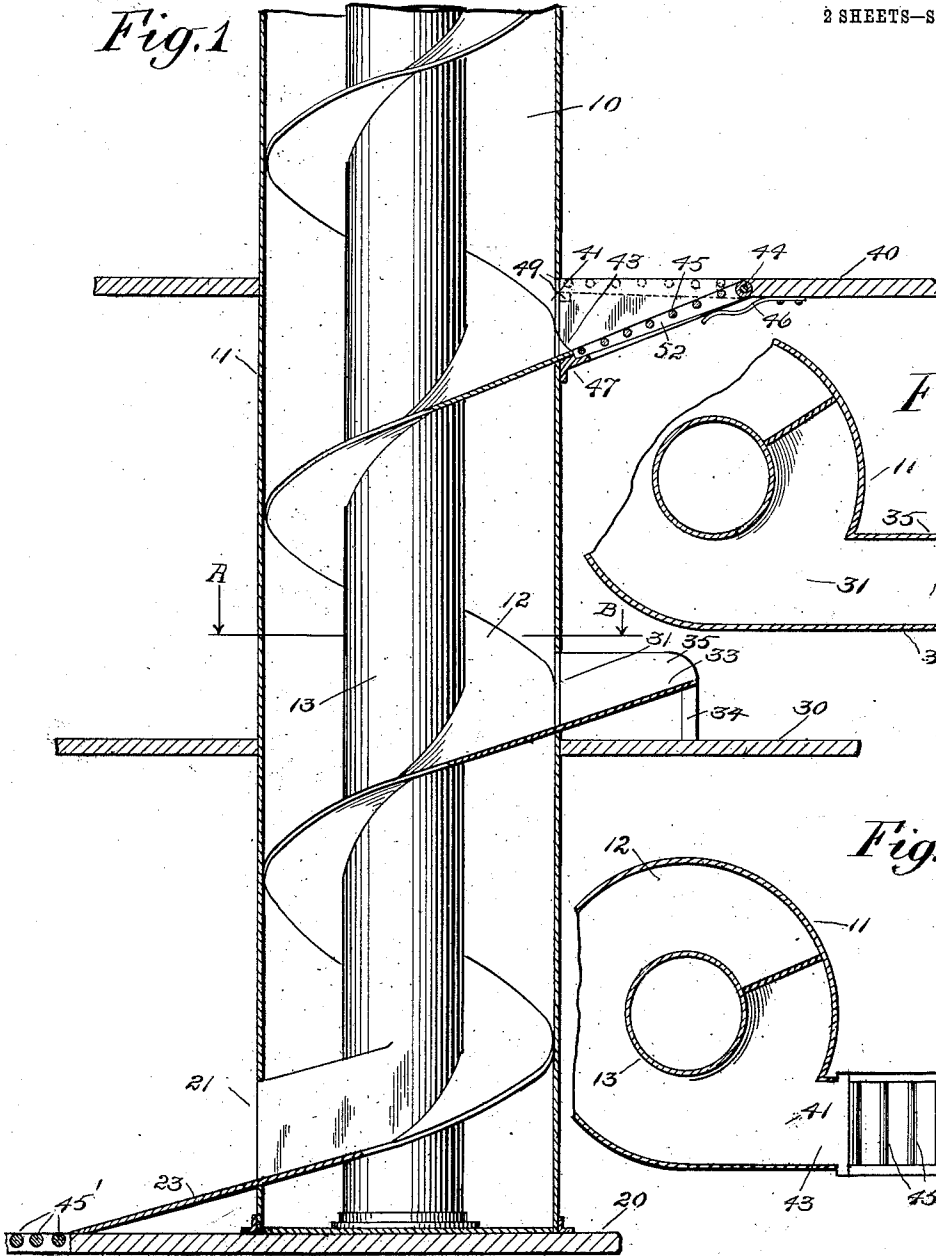


Fig. 2

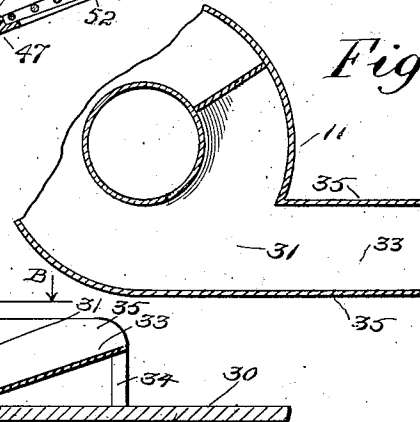
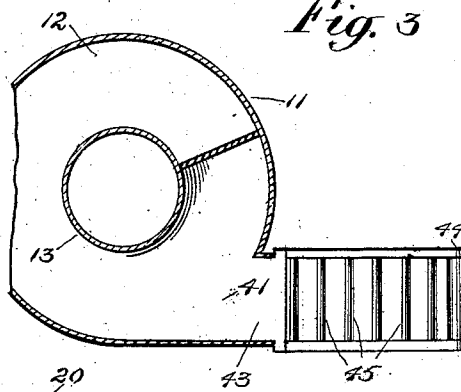


Fig. 3



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2 SHEETS—SHEET 2.

Fig. 4

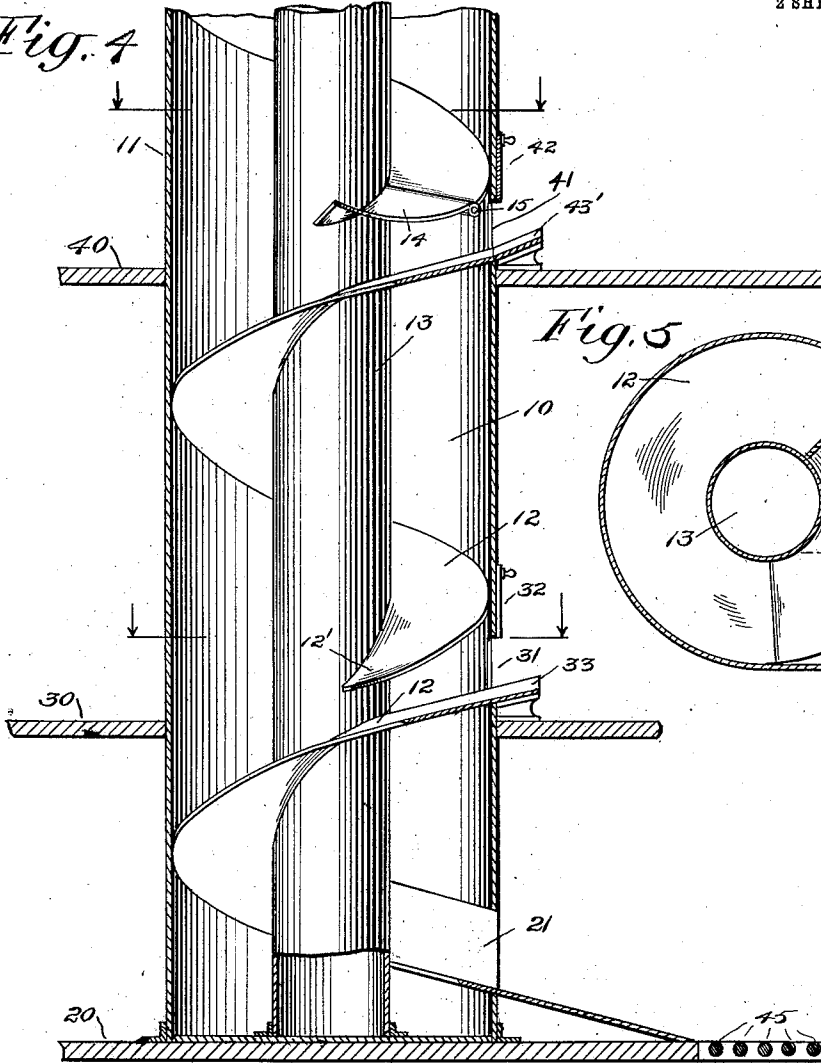


Fig. 5

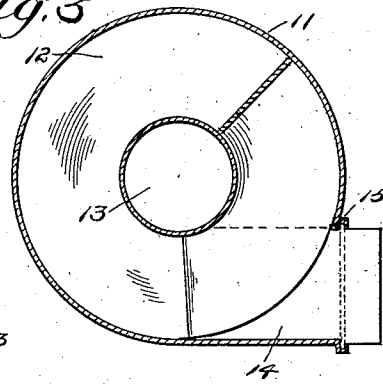
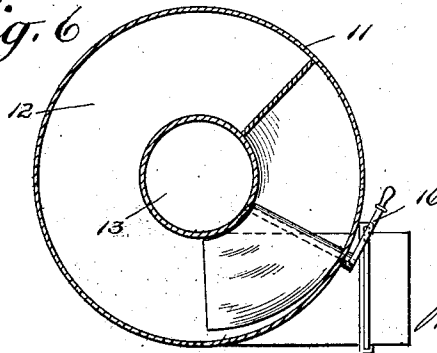


Fig. 6



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MARTIN C. SCHWAB, OF BALTIMORE, MARYLAND, ASSIGNOR TO GRAVITY CONVEYOR COMPANY, A CORPORATION OF NEW YORK.

PACKAGE-CONVEYER.

946,880.

Specification of Letters Patent.

Patented Jan. 18, 1910.

Application filed November 2, 1904, Serial No. 231,098. Renewed May 9, 1908. Serial No. 431,852.

To all whom it may concern:

Be it known that I, MARTIN C. SCHWAB, a citizen of the United States, residing at Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Package-Conveyers, of which the following is a specification.

My invention relates to package conveyers of the gravity type and more especially to those which are built in the form of spirals, and its object is to provide means for facilitating the handling of packages and putting them into and taking them out of the conveyers.

I will describe a package conveyer with my improvements attached and point out the novel features thereof in claims.

Referring to the drawings, Figure 1 represents in sectional elevation a spiral package conveyer with two forms of my invention attached thereto. Figs. 2 and 3 are plan views showing certain parts more in detail. Fig. 4 shows a part of a package conveyer in sectional elevation with certain modifications attached thereto, and Figs. 5 and 6 show these modifications more in detail, in sectional plan views.

Like characters of reference designate corresponding parts in all of the figures.

10 designates a spiral chute or package conveyer consisting of an outer shell 11, a spiral 12 inside of and attached to this shell and surrounding an inner core 13 to which it is also secured.

20, 30 and 40 designate different floors of a building which are connected by the conveyer.

21, 31 and 41 are openings in the outer shell 11 which afford communication between the floors and the chute.

32 and 42 are doors arranged to cover the openings 31 and 41 when they are not in use. They are so arranged that they may be slid up and down to open or close the openings to the chute. As shown in Fig. 4, they are in the open position. Although the doors are shown only at these two openings 31 and 41 and only in Fig. 4, they may be provided for the openings at the other floors if desired. They may also be of some other type from that here shown, as for example swinging doors.

Referring now to Fig. 1, I will describe the forms of my invention which are shown therein. At the floor 30 and directly oppo-

site the opening 31, an inclined shelf 33 is provided which is upheld by a support 34. At the sides of this inclined shelf, two side pieces 35 are provided which extend to and join onto the outer shell 11 of the conveyer. Fig. 2 is a sectional plan view which shows this arrangement more in detail. The inclined shelf runs into and joins the surface of the spiral 12 without any appreciable break. The use of this arrangement is obvious. When it is desired to place a package in the conveyer, it is lifted onto the inclined shelf 33 and being guided by the side pieces 35 it will slide down the inclined shelf 33 and onto the spiral 12 and will be carried on down the chute by gravity. The incline of the spiral itself and the position of the opening 31 which is at the side of the spiral as shown in Fig. 2, are such that the inclined shelf 33 and the opening 31 will not interfere with the passage of packages through the conveyer from some point above the floor where the opening and the inclined shelf are situated.

I will now describe the form of my invention which is shown at the upper part of Fig. 1 and in Fig. 3. In this case the opening 41 is placed below the level of the landing 40. A movable shelf 52 is hinged at 44 to the landing 40. This movable shelf is normally held up in a horizontal position, indicated by dotted lines in Fig. 1, by means of a spring 46 or some equivalent device. In this way it closes an opening in the landing 40 which has been cut away to make room for it. When a weight is placed upon the movable shelf 52, it will be depressed until it comes into the position indicated in the drawing where it will come to rest upon a stop 47 which is secured to the outer shell 11 of the conveyer. The surface of the spiral 12 is brought back through the opening 41 indicated at 43, so that it will be in line with the movable shelf 52 when the latter is in the position shown in the drawing. This is shown clearly in Fig. 3. I prefer to provide anti-friction rollers 45 on the movable shelf 52, so as to facilitate its operation. Now when packages are pushed along the landing 40 and onto the movable shelf 52, their weight will cause the latter to be depressed into the position shown in the drawing. The packages will thereupon slide down over the anti-friction rollers into the conveyer and be carried down through it

by gravity. The opening 41 is also placed in this instance at one side of the spiral and the surface 43 is carried upward a certain amount, so that they will not interfere with the passage of packages which are placed in the conveyer above them. Sometimes a sliding bolt 49 is provided to hold the movable shelf 52 up in its horizontal position when not in use, so that the full space of the landing 40 may be used for other purposes while the movable shelf 52 is not in use for putting packages into the conveyer.

At the landing 20 which is shown at the lower end of the chute where packages come out after they have been carried down by gravity, I sometimes provide rollers 45' to facilitate the passage of the packages over this landing floor.

In Figs. 4, 5 and 6 I have shown two other ways in which I sometimes construct my landing doors. The inclined shelf 33 in this case joins right onto the spiral 12 as before, so that packages placed upon it will slide directly onto the spiral and descend through the conveyer. In the case shown at the landing 30 I have divided the surface of the spiral and raised up a portion of it 12' so that it affords a passage between the portion of the spiral 12 which is joined to the inclined shelf 33 and the raised portion 12', for the packages which are put into the conveyer through the opening 31. When this construction is used, the packages which descend from above the landing 30 will drop from the portion 12' of the spiral 12 onto the portion of the spiral 12 which is below and joined to the inclined shelf 33. As this is sometimes undesirable in cases where the conveyer is to be used for heavy or fragile packages, I sometimes construct my arrangement in the manner shown at the upper portion of Fig. 4. Here, I separate a portion 14 of the spiral 12 and hinge it to the latter at 15. This portion 14 is rigidly attached to the pivot 15 and the lever 16 provided with a handle is rigidly attached to the pivot. The portion 14 of the spiral may thus be moved by means of the lever 16. Under normal conditions the portion 14 will rest upon the spiral 12, so that the continuity of the spiral is not broken, but when it is desired to place packages into the conveyer through the opening 41, the separate portion 14 of the spiral may be raised by means of the lever into position to permit articles to be placed in the conveyer and to form an obstruction for articles descending from a point above the opening 41. The inclined shelf 43' is constructed in this case in the same way as is the inclined shelf 33, although I have shown in this case the inclined shelf 43' of a separate piece which is of a steeper pitch to cause the packages which are placed upon it to slide into the chute quickly.

Having described my invention, what I claim is:

1. The combination of a gravity conveyer, and a landing therefor, said conveyer being provided with an opening and a portion of said landing being pivoted at one end and arranged to have its other end depressed opposite said opening.

2. The combination with a gravity conveyer, of a landing therefor, said conveyer being provided with an opening below the landing and a portion of said landing being pivoted at one end and arranged to have its other end depressed opposite said opening, and means for limiting the depression of said portion of the landing.

3. The combination with a gravity conveyer, of a landing therefor, said conveyer being provided with an opening below said landing, and a portion of the landing being pivoted at one end and arranged to have its other end depressed opposite said opening, means for limiting the downward movement of said pivoted portion of the landing, and means for locking the same level with the landing.

4. The combination with a gravity conveyer, of a landing therefor, said conveyer being provided with an opening into the same below said landing, a shelf pivoted at one end to said landing in an opening therein and comprising anti-friction rollers, the other end of said shelf being arranged to be depressed to the lower portion of said opening in the conveyer, means for limiting the downward movement of the said shelf, and means for locking the same at a level with the landing.

5. In a gravity conveyer, the combination with a casing provided with openings, landings at said openings, and a spiral inclosed by said casing, said spiral having interruptions opposite the openings in the casing at the landings.

6. In a gravity conveyer, a casing having an opening, a landing at said opening, a spiral provided with a conveying surface having an interruption forming an opening in such surface opposite the landing, means connecting the lower portion of this interrupted surface with the opening in the casing at the landing for guiding parcels from the landing to the spiral surface between the interrupted portions thereof.

7. The combination with a gravity conveyer having a spiral surface, of a landing therefor, said conveyer being provided with an opening therein at the landing, an inclined shelf extending from said landing to the said opening and joining said spiral surface, a portion of the spiral opposite the opening being pivoted, and means for raising said pivoted portion.

8. In a spiral gravity conveyer, the combination with a spiral, of a casing therefor,

a landing, and an inclined shelf on said landing and opposite an opening in said casing.

9. In a spiral gravity conveyer, the combination with a spiral, of a casing therefor provided with an opening, a landing at said opening, and a movable inclined shelf arranged to join the spiral to form a continuation of the spiral surface through said opening.

10. In a spiral gravity conveyer, the combination with a spiral, of a casing therefor provided with an opening, a landing at said opening, an inclined shelf adjacent said opening and the spiral surface of the conveyer, and side pieces to serve as guides for articles placed on said inclined shelf to direct them into the conveyer.

11. In a gravity conveyer, the combination with a spiral, of a casing therefor, provided with a plurality of intake openings at various elevations and with a discharge opening, inclined shelves for said respective intake openings, and an additional inclined shelf for said discharge opening, said shelves adjacent said openings and forming extensions of said spiral.

12. In a gravity conveyer, the combination with a tubular outer casing and a tubular inner core, of a spiral between said casing and core, landings at a plurality of intake openings in said outer casing, inclined shelves on said landings adjacent said openings and forming extensions of said spiral, an additional inclined shelf adjacent a discharge opening in said casing and extending to a landing, and anti-friction rollers in said last-named landing at the end of said additional inclined shelf.

13. In a gravity conveyer, the combination with a spiral, of a casing therefor provided with an opening, a landing, a shelf pivoted in said landing and arranged adjacent said opening, and means for holding said shelf in normal position.

14. In a gravity conveyer, the combination with a spiral, of a casing therefor provided with an opening, a landing above said opening, a shelf pivoted in an opening in said landing and arranged to be swung to afford communication through said openings into the conveyer.

15. In a gravity conveyer, the combination with a spiral, of a casing therefor provided with an opening, a shelf pivoted in an opening in said landing, and arranged to be depressed to a position substantially tangent with the surface of said spiral and to afford communication between said openings into the conveyer.

16. In a gravity conveyer, the combination with a spiral, of a casing therefor provided with an opening, a landing provided with an opening, a pivoted shelf in the last-named opening arranged to be depressed to

afford communication between said openings into the conveyer, and means for automatically returning said shelf to normal position to close the opening in the landing.

17. The combination with a spiral conveyer comprising an outer casing with an opening therein, of a landing adjacent said opening, a movable shelf pivoted in an opening in said landing and arranged to be depressed to form an inclined plane between said openings onto the spiral, a portion of the spiral extending through said opening in the outer casing to said shelf to join said inclined plane, means for limiting the downward movement of said shelf, and means for automatically returning said shelf to normal position to close the opening in the landing and means for locking said shelf in its normal position.

18. The combination with a gravity conveyer comprising a spiral and a casing therefor provided with an intake opening and a discharge opening, an upper and a lower landing, a shelf pivotally mounted in an opening in the upper landing and comprising anti-friction rollers, said shelf being arranged to be depressed at one end to afford communication between the opening in the upper landing and the intake opening, means for limiting the downward movement of said shelf to form an inclined plane in line with the spiral through the intake opening, a shelf forming an inclined plane in line with the spiral through the discharge opening, and anti-friction rollers in said lower landing adjacent the lower end of said last-named shelf.

19. In a gravity conveyer, the combination with a spiral divided into sections, a casing therefor, a plurality of intake openings at different elevations, and inclined shelves at said openings joined tangentially to the upper portions of said spiral-sections.

20. In a gravity conveyer, the combination with a spiral divided into sections, a casing therefor having a plurality of intake openings opposite the ends of said sections, inclined shelves joining the upper ends of said sections, and an inclined shelf joining the lower end of one of said spiral sections at the discharge opening in said casing.

21. The combination with a spiral blade and inner and outer supporting members therefor, of a hinged section of said spiral blade, and means for moving said section into position to form part of the spiral way, or turned up pivotally to break the continuity of the spiral and to form an obstruction for descending articles.

In witness whereof I have signed my name in the presence of two subscribing witnesses.

MARTIN C. SCHWAB.

Witnesses:

ISAAC CUNTAUR,

J. A. E. GRANBERY.