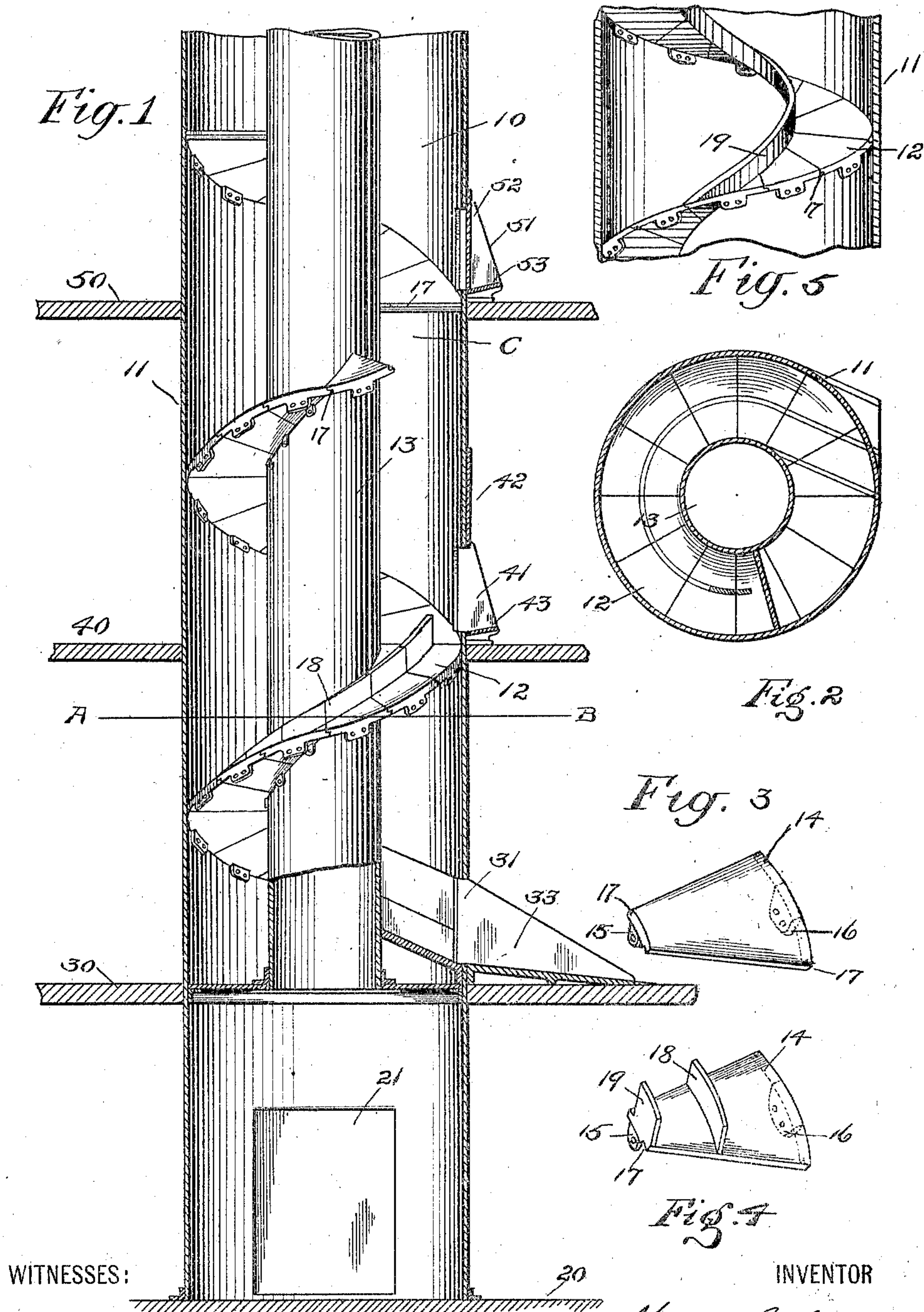


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PATENTED APR. 10, 1906.

M. C. SCHWAB.
SPIRAL CHUTE.

APPLICATION FILED MAR. 23, 1904.



WITNESSES:

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SPIRAL CHUTE.

No. 817,341.

Specification of Letters Patent.

Patented April 10, 1906.

Application filed March 23, 1904. Serial No. 199,664.

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 Spiral Chutes, of which the following is a specification.

This invention relates to spiral chutes, such as are used for package-conveyers, and more especially to the construction of the chutes, its purpose being to simplify and cheapen the construction of chutes of this character.

A further object is to provide means for keeping different kinds of parcels separate while they are being conveyed through such chute.

To this end this invention consists in the novel construction and arrangement of parts herein described, and specifically pointed out in claims.

Referring to the drawings, Figure 1 is a sectional side elevation of a spiral chute comprising my invention. Fig. 2 is a sectional plan view of the same, the section being taken through the line A B of Fig. 1. Figs. 3 and 4 are detail views of certain parts used in the construction of a chute made according to the present invention. Fig. 5 is a sectional elevation of a part of a chute, showing a modification of my invention.

Like figures of reference indicate corresponding parts in all of the figures.

10 designates a spiral chute or package-conveyer built according to this invention and comprising an outer shell 11 and a spiral 12 inside of and attached to this shell. The drawings show the spiral surrounding an inner shell or core 13, to which it is also secured.

30, 40, and 50 designate different floors of a building which are connected by the conveyer.

31, 41, and 51 are openings in the outer shell 11, which afford communication between the floors of a building and the chute. 42 and 52 designate doors arranged to cover these openings when they are not in use. The door 42 is shown in its raised or open position, while the door 52 is shown in its closed position. The openings 41 and 51 are preferably above the level of the spiral itself, so that they will not interfere with the passage of parcels which may pass by them in the chute and, as shown, are provided with in-

clined shelves 43 and 53 for facilitating the putting of packages into the chute. The inclined shelf (shown at 33) is attached to the lower end of the spiral and is for the purpose of conveying packages from the spiral to the floor 30.

If desired, the outer shell 11 may be carried down below the lower end of the spiral, as shown in Fig. 1. As shown in this figure, the outer shell 11 is carried down to the basement 20 of the building, and as the spiral ends at floor 30 a chamber is thus formed. An opening 21 may be provided in the outer shell 11, and, if desired, this opening may be provided with a door for closing it.

Gravity-conveyers of this kind are in common use. The purpose of this invention is to provide a novel way of constructing them, which is shown herein and which will greatly simplify their manufacture and lessen the cost of making them. A further object of this invention is to increase their efficiency by dividing the spiral itself into two parts, so that packages of different character may be transmitted through it at the same time. The first of these objects I obtain by constructing the spiral of a number of plates 14, such as are shown in Figs. 3 and 4. These plates may be made in any desired way, as by casting them of metal or pressing them into shape, and are provided with lugs or projections 15 and 16, which have holes in them adapted to receive rivets or bolts. These plates are made of a proper width to fit the inner core 13 and the outer shell 11 and are attached to the core and to the shell by means of rivets or bolts. Their edges are provided with lips 17, so arranged that the upper lip of one plate will fit into the under lip of the succeeding plate, so that they will interlock. This construction is clearly shown in Fig. 1, where, as shown at C in the drawings, just below the floor 50 one of the plates has not yet been put in place. These plates are designed to have the proper pitch for the spiral, which pitch of course may be more or less, according to the design and purpose of the chute. The plates may be made up in quantities and are easily handled in shipment. They may be readily attached to the core and outer shell of the chute either while the latter are being erected or before or after that time. With this construction it is possible

to entirely do away with the inner core 13. When this is done, I prefer to provide on the inner side of the plates a raised portion 19. (Shown in Fig. 4.) Centrifugal force tends to
 5 keep the parcels which are descending through the chute at its outer side, so there is little or no danger of any of them falling through the inside of the chute when the inner tube is omitted. The raised portion 19
 10 may, if desired, be made of sufficient height to meet the bottom of the plate immediately above it. Thus, in effect, the plates would form their own inner core. So, too, could the
 15 outer side of the plates be made of the proper shape to form the outer shell of the chute. This latter I have not shown, as I consider it a poor construction. Fig. 5 shows in section a part of a chute made without an inner core.

A further object of this invention is to in-
 20 crease the efficiency of the chute by dividing it into parallel parts. This may be done by making the plates 14, as shown in Fig. 4, with a rib or ribs 18 intermediate their sides. The lower part of the chute (shown in Fig. 1) is
 25 made of plates having these ribs. This part of the chute is constructed in this way and has the advantage of having two or more separate paths for conveying packages. As shown, it is divided into two such paths.
 30 This is a desirable feature when the chute is used for packages of a miscellaneous character, as, for example, it would be if used in a department-store. In such a case packages of a very delicate or fragile nature would of-
 35 ten be conveyed through the chute at the same time that heavy packages were being so conveyed, and this would put those of a more delicate or fragile nature in great danger of breakage. However, if the chute is
 40 divided, as herein shown and described, the heavier packages may be conveyed on one part of the chute, while the more fragile ones may be conveyed on another part of the chute. When a chute is thus divided, the
 45 inclined shelf 33 may also be divided by a rib or ribs similar to 18 of the spiral and may be arranged to separate the heavy and the light packages as they are emptied upon the floor 30.

I do not confine myself to the use of the
 50 plates 14 with their ribs 18 for dividing the conveying-surface of the chute into parallel paths, as any other means may be employed for accomplishing this end.

Having described my invention, what I
 55 claim is—

1. In a spiral chute, the combination of an outer shell, and a spiral having a continuous surface and being composed of formed plates attached to the outer shell, said plates being
 60 provided with a raised portion on their upper side.

2. In a spiral chute, the combination of an outer shell, and a spiral composed of formed plates attached to the outer shell, said plates

being provided with a raised portion on their 65 upper side to have a plurality of conveying-surfaces.

3. In a spiral chute, the combination of an outer shell, an inner core and a spiral composed of formed interlocking plates attached 70 to the outer shell and to the inner core.

4. In a chute, a conveying-spiral having its surface divided into parallel paths.

5. In a spiral chute, a conveying-spiral, and a rib to divide the spiral surface into 75 parallel paths.

6. In a spiral chute, the combination of an outer shell, a spiral composed of formed plates attached to the shell, said plates being provided with ribs or their conveying-surfaces. 80

7. In a spiral chute, the combination of an outer shell, an inner shell, and a spiral composed of formed interlocking plates attached to the outer shell and to the inner shell, the surface of said spiral being divided into parallel paths. 85

8. In a spiral chute, the combination with an outer shell, of an inner shell, a spiral between said shells, said spiral comprising formed plates with interlocking lips, and a 90 rib on said plates to divide the spiral surface into parallel paths.

9. In a gravity-conveyer, the combination with a tubular shaft provided with an intake-opening, a spiral, an inner core, a landing at 95 said opening, and an inclined shelf adjoining the lower portion of said opening above the spiral surface.

10. As an article of manufacture, a plate arranged to form a portion of a spiral, and in- 100 terlocking means for said plate.

11. As an article of manufacture, a plate of a shape conforming to a spiral, interlocking lips on said plate, and means for attachment to a suitable support. 105

12. As an article of manufacture, a plate having a surface to form a section of a spiral of a gravity-conveyer, ribs attached to said plate on said surface to divide the spiral into two parallel paths. 110

13. As an article of manufacture, a plate formed for a section of a spiral of a gravity-conveyer, a rib attached to its inner end and arranged to form a portion of the support for the spiral, and securing means for said rib. 115

14. As an article of manufacture, a plate arranged to form a section of a spiral of a gravity-conveyer, interlocking lips at the edges of said plate, and means at the ends of said plate for securing the same to suitable 120 supports.

15. As an article of manufacture, a plate arranged to form a portion of a spiral of a gravity-conveyer, interlocking lips at the edges of said plate, means at the ends of said 125 plate for attaching the same to suitable supports, and a rib on said plate to divide the spiral surface into parallel paths.

16. As an article of manufacture, a plate
 arranged to form a portion of a spiral of a
 gravity - conveyer, interlocking lips at the
 edges of said plate, and means at the ends of
 5 said plates for attachment of the same to the
 outer shell and inner core of the conveyer.

In testimony whereof I have signed my

name to this specification in the presence of
 two subscribing witnesses.

MARTIN C. SCHWAB.

Witnesses:

HENRY E. KIRBY,
 WALTER C. STRANG