

M. C. SCHWAB.
 MULTIPLE GRAVITY CONVEYER.
 APPLICATION FILED OCT. 24, 1907.

961,804.

Patented June 21, 1910.

2 SHEETS—SHEET 1.

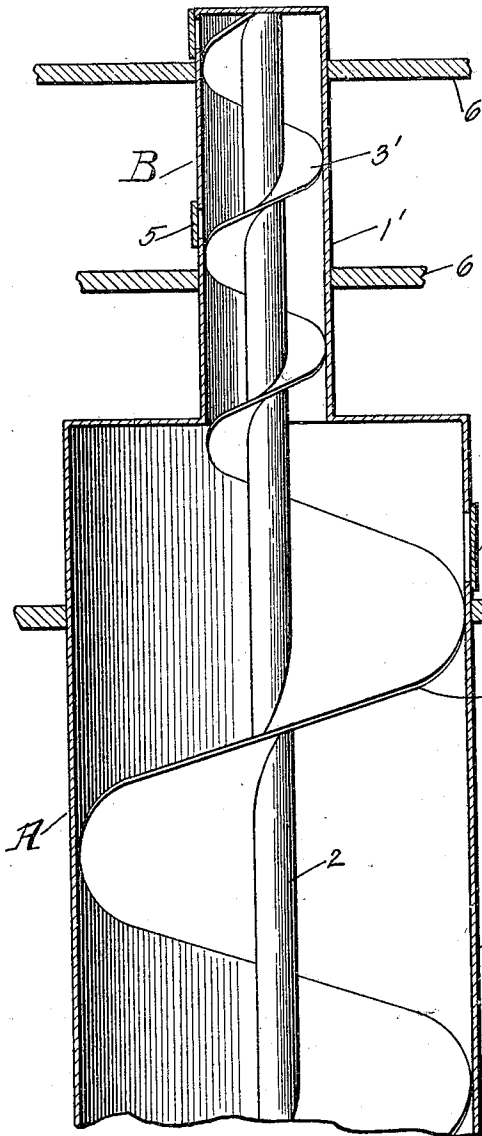


Fig. 1.

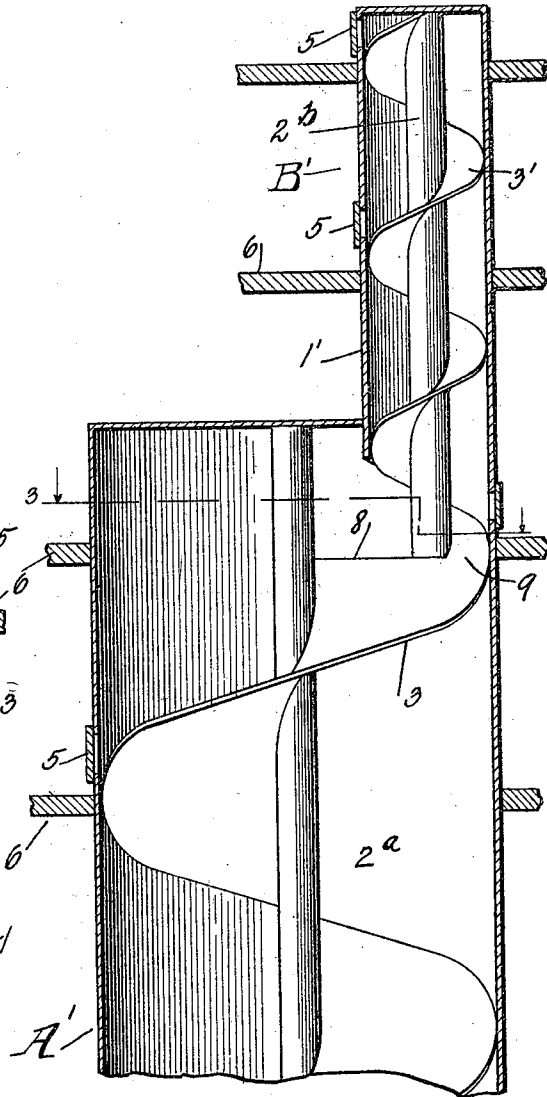


Fig. 2.

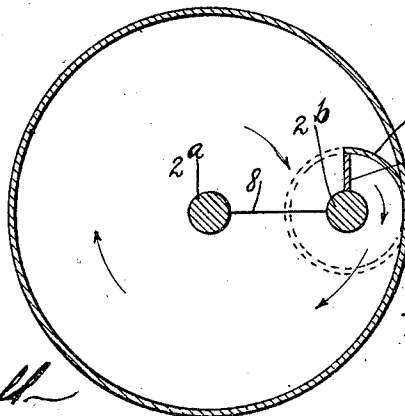


Fig. 3.

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Inventor:
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961,804.

2 SHEETS--SHEET 2.

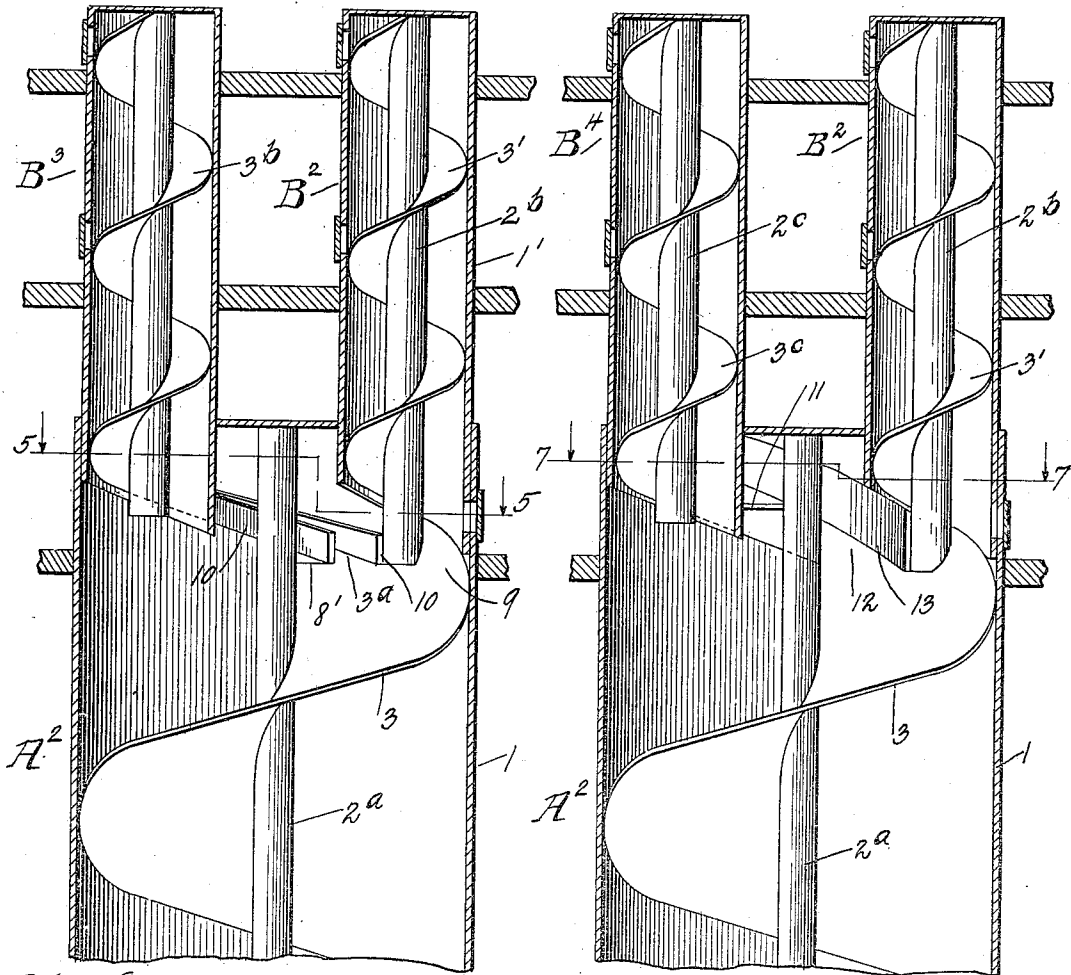


Fig. 4.

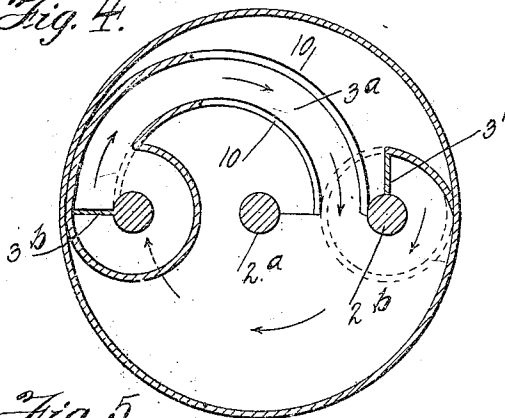


Fig. 5.

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Fig. 6.

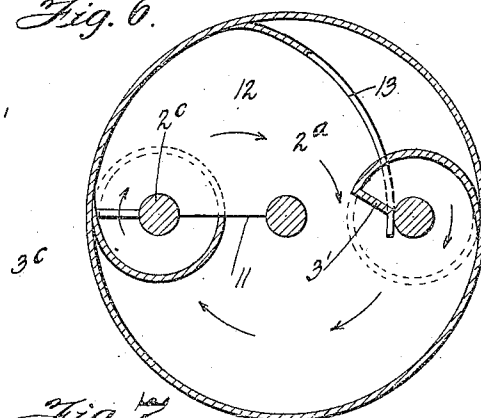


Fig. 7.

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UNITED STATES PATENT OFFICE.

MARTIN C. SCHWAB, OF CHICAGO, ILLINOIS, ASSIGNOR TO GRAVITY CONVEYOR COMPANY, A CORPORATION OF NEW YORK.

MULTIPLE GRAVITY CONVEYER.

961,804.

Specification of Letters Patent. Patented June 21, 1910.

Application filed October 24, 1907. Serial No. 398,965.

To all whom it may concern:

Be it known that I, MARTIN C. SCHWAB, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Multiple Gravity Conveyers, of which the following is a specification.

My invention relates to gravity conveyers, and one of its objects is the provision of a conveyer having a larger diameter near the base than at the top, the conveyer of the smaller diameter extending to the upper floors of a building to receive light packages and merging into the larger conveyer. Other objects will appear hereinafter, the novel combinations of elements being pointed out in the appended claims.

Figure 1 is a sectional elevation of a large and small conveyer combined, the smaller conveyer being located centrally with relation to the larger conveyer; Fig. 2 is a similar view but with the smaller conveyer at one side of the center of the large conveyer; Fig. 3 is a section on the line 3—3 of Fig. 2; Fig. 4 is a sectional elevation of a modification in which two small conveyers merge into the large conveyer; Fig. 5 is a section on the line 5—5 of Fig. 4; Fig. 6 is a view similar to Fig. 4 of a modification; and Fig. 7 is a section on the line 7—7 of Fig. 6.

Referring to Fig. 1, the larger conveyer A comprises an outer cylindrical shell or casing 1, a central inner core 2, and an interposed spiral blade 3, all of usual construction. Located above the conveyer A is a conveyer B similar to conveyer A, but of smaller diameter and comprising an outer shell 1' and a spiral blade 3' surrounding the core 2 which extends through both casings. Doors 5 are conveniently located with respect to the floors 6 to receive articles delivered to the conveyers. The lower end of the casing 1' opens into the casing 1, and the lower end of the spiral blade 3' merges into the blade 3, so that the two conveyers A and B may be considered as a single conveyer having sections of different diameters, the smaller section being sufficient to accommodate the smaller articles to be conveyed from the upper floors of a store or building, while the larger section provides for larger boxes and bundles that may be delivered to the conveyer at the lower floors.

This construction serves the purpose of a large conveyer for the lower floors, and an additional small conveyer extending the entire height of the building, while securing the advantages of lessened cost of construction and installment, economy of space, etc. Similar advantages over a single large conveyer are also secured by the present invention.

Figs. 2 and 3 show a modified construction in which the small conveyer B' is located at one side of the center of the larger conveyer A'. The small conveyer is in this instance provided with a central core 2^b separate from the core 2^a of the large conveyer. The upper end of the spiral blade 3 in Fig. 2 has a portion which terminates in a horizontal edge 8 extending between the cores 2^a and 2^b, and a connecting portion 9 between the core 2^b and the shell of the casing which merges into the spiral blade 3'. The smaller casing 1' extends a short distance within the shell 1, the lower edge of the casing 1' following the outer edge of the spiral to the point where it meets the shell 1. It will thus be seen that the outer edge of the spiral blade is substantially in contact with the shells throughout its length so that articles are prevented from being crowded off the spiral blade or thrown off by centrifugal force during their descent through the conveyer.

Figs. 4 and 5 show a construction combining two small conveyers B², B³ with a large conveyer A². The construction of the conveyers A² and B² is substantially like that of the conveyers A', B' of Fig. 2. The upper end of the large spiral blade 3, however, in Fig. 4 instead of having a horizontal edge 8 extending entirely across between the cores 2^a, 2^b, has only a short horizontal edge 8', the remaining portion between the two cores being continued as an inclined strip 3^a curved as shown in Fig. 5 and merging into the spiral blade 3^b of the conveyer B³. Guiding walls 10 extending along the edges of the strip 3^a and perpendicular thereto merge into the casing of the conveyer B³ and serve to guide articles in their descent along the strip 3^a.

Figs. 6 and 7 show a modification of the connections between the large conveyer A² and the smaller conveyer B⁴ at the left-hand side. In this construction the upper end of

the spiral blade 3° terminates in a horizontal edge 11 extending between the central core 2^a and the core 2° of the conveyer B⁴. The lower ends of the blades 3° and 3' merge into the blade 3. The portion 12 of the blade 3 between the blades 3' and 3° is provided with a guide wall or deflector 13 to prevent articles descending through the conveyer B⁴ from striking the conveyer B².

A central conveyer B, such as shown in Fig. 1, might obviously be combined with one of the eccentrically located conveyers B', B² of the other figures, or if desired more than two of the smaller conveyers may be united with a single large conveyer.

I wish not to be limited to the exact construction disclosed, as various changes in details of construction and arrangement of parts might be made without departing from the spirit and scope of my invention.

What I claim as new and desire to secure by Letters Patent of the United States is:—

1. The combination of two gravity conveyers of different sizes united to form a single conveyer.

2. In a gravity conveyer, the combination of vertically disposed cylindrical shells of different sizes united to form a single passageway, and means for guiding articles spirally therethrough.

3. The combination of superposed shells of different cross-sectional areas, and a stationary device forming a continuous guide for articles passing therethrough.

4. In a conveyer, the combination of cylindrical shells of different diameters united to form a continuous passage, and stationary means for guiding articles spirally through said passage.

5. In a gravity conveyer, the combination of vertically disposed communicating cylindrical shells of different diameters, and means for guiding articles through the shells.

6. A gravity conveyer formed with a passageway comprising sections of different cross-sectional areas, and stationary means for guiding articles spirally therethrough.

7. In a gravity conveyer, the combination of tubular sections of different diameters, and a stationary spiral guide extending into both sections.

8. In a gravity conveyer, the combination of communicating tubular shells of different diameters, and fixed spiral guides within the shells of sizes proportional to the diameters of the shells.

9. In a conveyer, the combination of communicating tubular shells of different diameters, and spiral guides of different widths within the shells, said shells and guides being united to form a single passageway and a continuous guide extending through said passageway.

10. In a conveyer, the combination of cylindrical shells of different diameters, and

spiral blades of different widths united in the form of a single spiral guide extending through the shells.

11. In a conveyer, the combination of wide and narrow spiral blades united as a single blade, and cylindrical shells surrounding the blades.

12. In a conveyer, the combination of a strip of sheet material comprising longitudinal sections of different widths, each spirally twisted, and walls connected to said strips.

13. In a conveyer, the combination of a strip of sheet material comprising longitudinal sections of substantially different uniform widths, the entire strip being twisted in the form of a continuous spiral, and means co-acting with said strip to form a gravity conveyer.

14. In a conveyer, the combination with a cylindrical shell of large diameter, of a superposed cylindrical shell of smaller diameter, and a helical guide extending through the shells.

15. In a conveyer, the combination with a vertical cylindrical shell, of a superposed cylindrical shell of smaller diameter, and a spiral blade extending through the shells with one of its edges substantially in contact with the shells throughout its length.

16. In a conveyer, the combination with cylindrical shells of different diameters, of a core extending through the shells, and a spiral blade surrounding the core.

17. In a conveyer, the combination with a plurality of concentrically arranged cylindrical shells of different diameters, of a single core extending through the shells, and a spiral blade surrounding the core.

18. In a conveyer, the combination with a vertical cylindrical shell, of a concentric superposed cylindrical shell of smaller diameter, a concentric core extending through the shells, and a spiral blade surrounding the core and extending through both shells.

19. In a conveyer, the combination with a vertical tube, of a plurality of tubes of smaller diameter placed above the larger tube and communicating therewith, and spiral guiding means for guiding articles through the tubes.

20. In a conveyer, the combination with a vertical cylindrical shell or casing, of a plurality of cylindrical shells of smaller diameter opening into the larger shell, and spiral blades within the shells.

21. In a conveyer, the combination with a cylindrical shell or casing, of a plurality of superposed shells of smaller diameter, a spiral blade within the larger shell, and spiral blades in the smaller shells connected to said first-named blade.

22. In a conveyer, the combination with a vertical cylindrical shell, of superposed shells of smaller diameter opening into the

larger shell on opposite sides of its diameter, and means for guiding articles through the shells.

23. In a conveyer, the combination with
5 a vertical cylindrical shell, of a plurality of
superposed shells of smaller diameter opening
into the larger shell, a spiral blade within
the larger shell, and spiral blades within the
smaller shells forming continuations of the
10 blade in the larger shell.

24. In a conveyer, the combination with
communicating tubular shells, of a spiral
blade in each shell, a strip connecting the
blades, and guide walls extending along the
15 strip.

25. In a conveyer, the combination with
a vertical cylindrical shell, of a cylindrical
shell of smaller diameter communicating
therewith, spiral blades within the shells,
20 one of said blades having an extension unit-

ing the blades, and guide walls substantially
perpendicular to said extension.

26. In a conveyer, the combination with
a vertical cylindrical shell or casing, of cy-
lindrical shells of smaller diameter opening 25
into the larger shell, a spiral blade within
the larger shell, spiral blades within the
smaller shells and connected to said first-
named blade, and a deflector in position to
prevent articles in their passage from one 30
of the smaller shells to the larger shell from
striking the other of the smaller shells.

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

MARTIN C. SCHWAB.

Witnesses:

CARL P. SCHROEDER,
G. F. GEXLICKA.