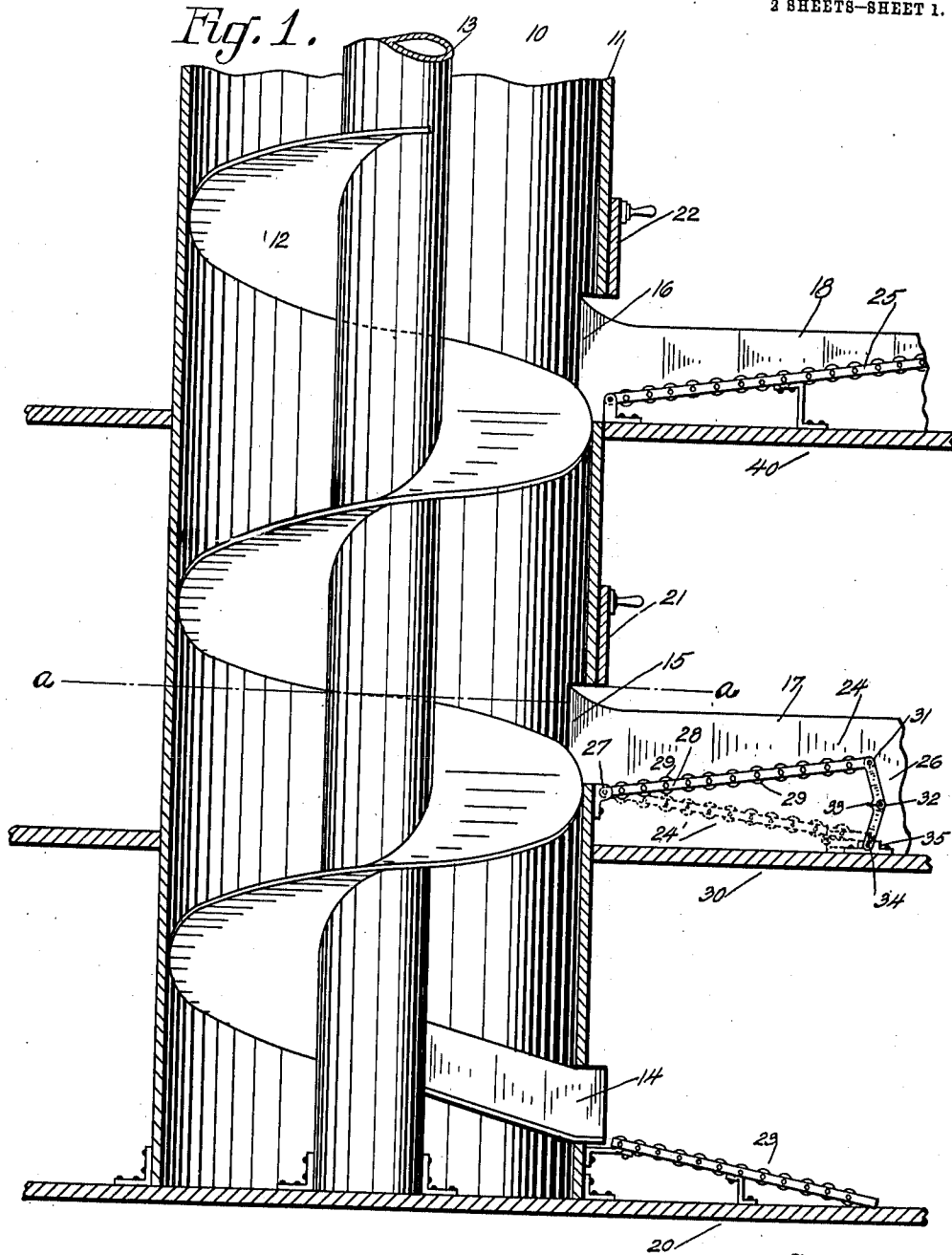


M. C. SCHWAB.
GRAVITY ROLLER FOR GRAVITY CONVEYERS.
APPLICATION FILED JAN. 27, 1908.

992,910.

Patented May 23, 1911.

2 SHEETS—SHEET 1.



Witnesses:

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Fig. 2.

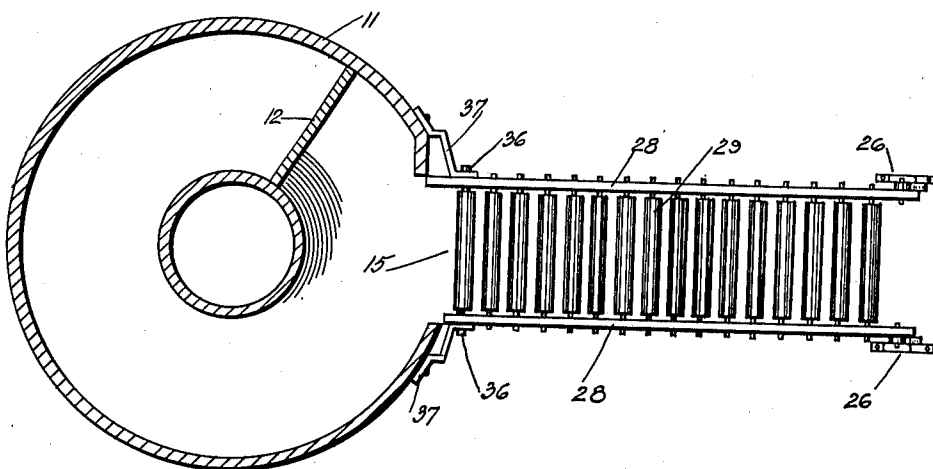
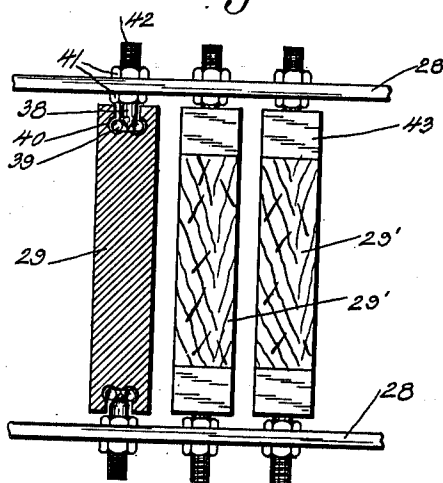


Fig. 3.



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UNITED STATES PATENT OFFICE.

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

GRAVITY-ROLLER FOR GRAVITY-CONVEYERS.

992,910.

Specification of Letters Patent.

Patented May 23, 1911.

Application filed January 27, 1908. Serial No. 412,749.

To all whom it may concern:

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

My invention relates to improvements in gravity conveyers, and has for an object the provision of means for facilitating the entrance and discharge of parcels to and from a conveyer.

Other objects will appear hereinafter, the novel combinations of elements being set forth in the appended claims.

My invention is illustrated in the accompanying drawings, in which:—

Figure 1 is a vertical sectional view of a conveyer extending through several floors of a building; Fig. 2 is a sectional plan view taken approximately on the line *a-a*, of Fig. 1; Fig. 3 is an enlarged view in part section of certain details.

In the accompanying drawings the invention is illustrated as installed in a building of which three floors are shown. The lower or ground floor 20 represents the basement or shipping department, and the upper floors are designated respectively 30 and 40.

It is to be understood that this conveyer may be installed in a building having any desired number of floors and may be located in any convenient place in a building consistent with the architectural plan thereof.

In the present instance the conveyer 10 comprises an outer tubular casing 11 and an inner central core 13, between which is rigidly secured a spiral blade or conveying surface 12. At the floors, openings 14, 15 and 16 are provided which are preferably slightly above the floor level and which afford communication between the landings and the interior of the conveyer and through which parcels may be placed in or taken out of the conveyer. These openings may be closed by doors such as 21 and 22. As illustrated the floor 40 is only used as a send-

ing floor while the floor 30 may be used for either a sending or delivery floor. The basement landing is only used for delivery and for this reason the opening 14 is not provided with a door. At the floors 20, 30 and 40 are provided gravity roller conveyers designated by 23, 24 and 25, respectively, by means of which parcels may be readily conveyed into or out of the spiral conveyer, guards 17 and 18 being used if desired to prevent lateral displacement of articles in their travel along the roller conveyers. It will be seen that the roller conveyer 25 at the floor 40 inclines toward the spiral surface since this floor is only used as a sending floor. At the floor 30 however, the roller conveyer 24 is arranged so that it may be inclined toward or away from the conveyer spiral as desired. The roller conveyers 23 and 25 may be held stationary by brackets or other suitable means while the roller conveyer 24 at an intermediate floor may be hinged at one end to the conveyer casing, the other end being preferably supported by a collapsible brace or strut 26 which will maintain the roller conveyer 24 in its sending position as shown in full lines on the drawing, when the brace 26 is extended. When this brace 26 is collapsed the roller conveyer 24 will assume the position shown by dotted lines which position is suited for discharging articles from the conveyer surface 12 at the opening 15. The collapsible strut 26 comprises two similar portions hinged together at 32. The upper portion is pivoted at 31 to the frame 28 while the lower portion is pivoted at 34 to a stationary bracket 35. The adjacent ends 33 of the strut portions are so shaped that the hinge 32 may be moved slightly to the right of a straight line drawn between the points 31 and 34 in which position the strut 26 will support the roller conveyer 24 firmly in the position shown. When however the strut hinge 32 is moved to the left it will collapse or fold upon itself and the parts will assume the position illustrated in dotted lines at 24'. While the strut 26 answers the

purpose for which it is used, any arrangement may be used to maintain the roller conveyer 24 in the desired position.

The roller conveyers 23, 24 and 25 are constructed substantially alike, and they comprise parallel side frames 28, 28, between which are placed a number of anti-friction rollers 29. These rollers are preferably spaced about three-eighths of an inch between adjacent faces so that there will be no danger of articles falling through, or wedging themselves between the rollers. This spacing, however, may be varied to suit the articles to be conveyed. Two kinds of rollers are shown in Fig. 3, one of these, a metal roller 29 is provided at both ends with a recessed portion 40 containing hardened steel balls 39, which bear against the hardened cone shaped portion 38 of the supporting screws 42. These screws may be adjusted and firmly locked in place by means of lock nuts 41. The rollers 29' instead of being made entirely of metal, each comprises a central body portion made of wood, and metal ends 43 which contain the balls and ball races. A roller so constructed is both lighter and cheaper than one made entirely of metal, and for this reason is usually preferable to the metal roller. Instead of combining the iron rollers 29 and wooden rollers 29', as in Fig. 3 either kind may, of course, be used exclusively. Since the rollers are provided with anti-friction bearings they will revolve very easily and by slightly inclining the roller conveyer and articles placed on it will readily be conveyed to or from the conveying surface 12 as the case may be. By varying the amount of inclination of the roller conveyers at the different floors, the speed of entrance and delivery may be varied at will.

The roller conveyers may, if desired, be pivoted as at 36 (Fig. 2) to brackets 37 secured to the spiral conveyer, and by having the outer ends of the roller conveyers free, they may be swung up to a vertical position when not in use, and secured in such position by any convenient means.

I am aware that positively driven conveyers have been used in conjunction with gravity conveyers, but the roller conveyers herein described may be used where there is no available power, or when it is not convenient to use positively driven conveyers. Moreover, the arrangement of roller conveyers which I have just described provides a practical, efficient, and inexpensive construction possessing various advantages over power driven devices even where power is available.

As before pointed out, the conveyer may pass through as many floors of a building as desired, also at every floor opening in the

conveyer, whether the same is used for sending or delivering articles or for both sending and delivering, or where a separate opening is used on each floor for sending and delivering, a roller conveyer may be used. As the extreme top and bottom opening in the conveyer are obviously only used for sending and delivering respectively, and as intermediate floors may be used either for sending or delivering, I prefer to use at such intermediate floors an adjustable roller conveyer such as is shown at the floor 30. The roller conveyers at the top and bottom floors may be stationary or made adjustable as to inclination, or if desired, the roller conveyer may be so pivoted that it can be swung out of the way, leaving the adjacent floor opening unobstructed. In fact my invention is capable of many and various modifications, which might suggest themselves to those skilled in the art without departing from the spirit and scope of my invention.

Therefore, what I claim as new and desire to protect by Letters Patent of the United States is:—

1. The combination with a vertical spiral gravity conveyer, of a lateral rolling gravity conveyer associated therewith, and means for changing the inclination of the lateral conveyer to convey articles either toward or away from said spiral conveyer.

2. The combination with a vertical conveyer, of a lateral rolling gravity conveyer associated therewith and adjustable to positions to either deliver articles to or convey articles from the vertical conveyer.

3. The combination with a vertical spiral gravity conveyer, of a lateral conveyer hinged at one end adjacent to the vertical conveyer in position to either deliver articles to or convey articles from the conveyer, and a collapsible brace for holding the opposite end either above or below the hinged end.

4. The combination with a spiral conveyer, of a hinged rolling gravity conveyer in position to communicate with the spiral conveyer, and a collapsible brace for holding the hinged conveyer either upwardly or downwardly inclined from the spiral conveyer.

5. In conveying mechanism, the combination with a conveyer comprising a spiral conveying surface and a tube or casing formed with openings at the several floors, of a building, of a roller gravity conveyer at the uppermost of said openings inclined downwardly toward the opening in position to convey articles to the spiral conveying surface, roller gravity conveyers for the intermediate openings each having one end hinged adjacent to the spiral conveying sur-

face and its opposite end movable up and
down into positions to permit articles to be
conveyed either to or from the spiral con-
veying surface, and a roller gravity con-
veyer at the lowermost of said openings in-
clined downwardly from the opening in po-
5 sition to convey articles from the spiral con-
veying surface.

In testimony whereof, I have signed my
name to this specification in the presence of 10
two subscribing witnesses.

MARTIN C. SCHWAB.

Witnesses:

THEODORE VLADIMIROFF,
CARL R. SCHROEDER.