

C. D. SEEBERGER.
CONVEYER.

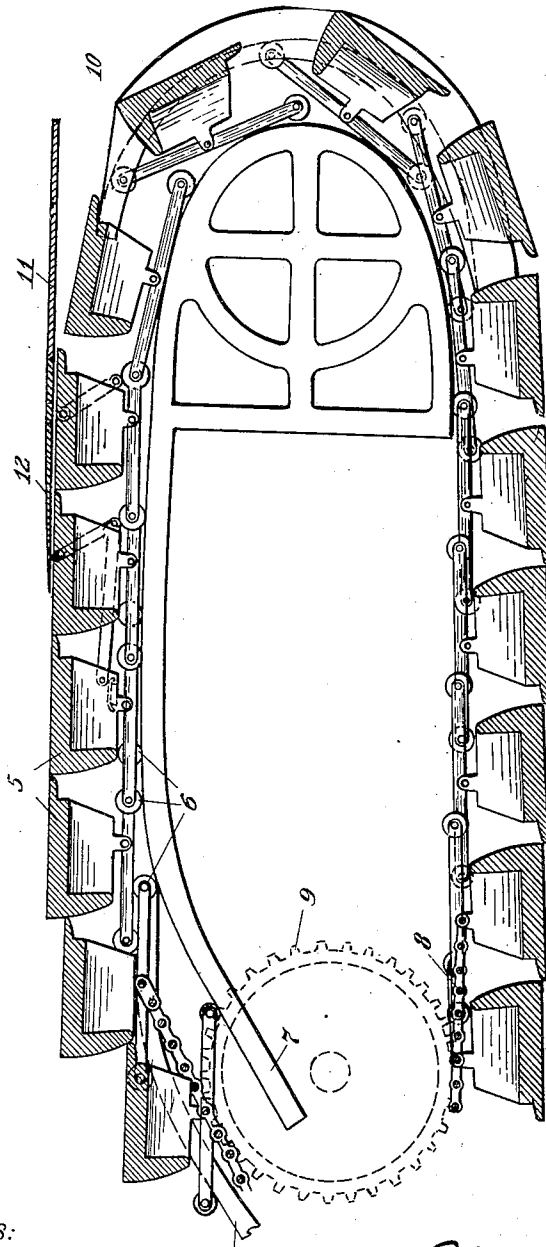
APPLICATION FILED APR. 9, 1906. RENEWED APR. 25, 1910.

977,047.

Patented Nov. 29, 1910.

2 SHEETS—SHEET 1.

Fig. 1.



WITNESSES:

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2 SHEETS—SHEET 2.

Fig. 2.

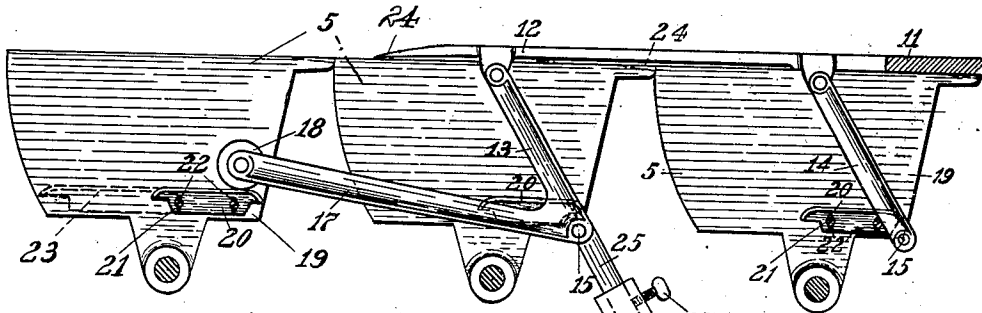
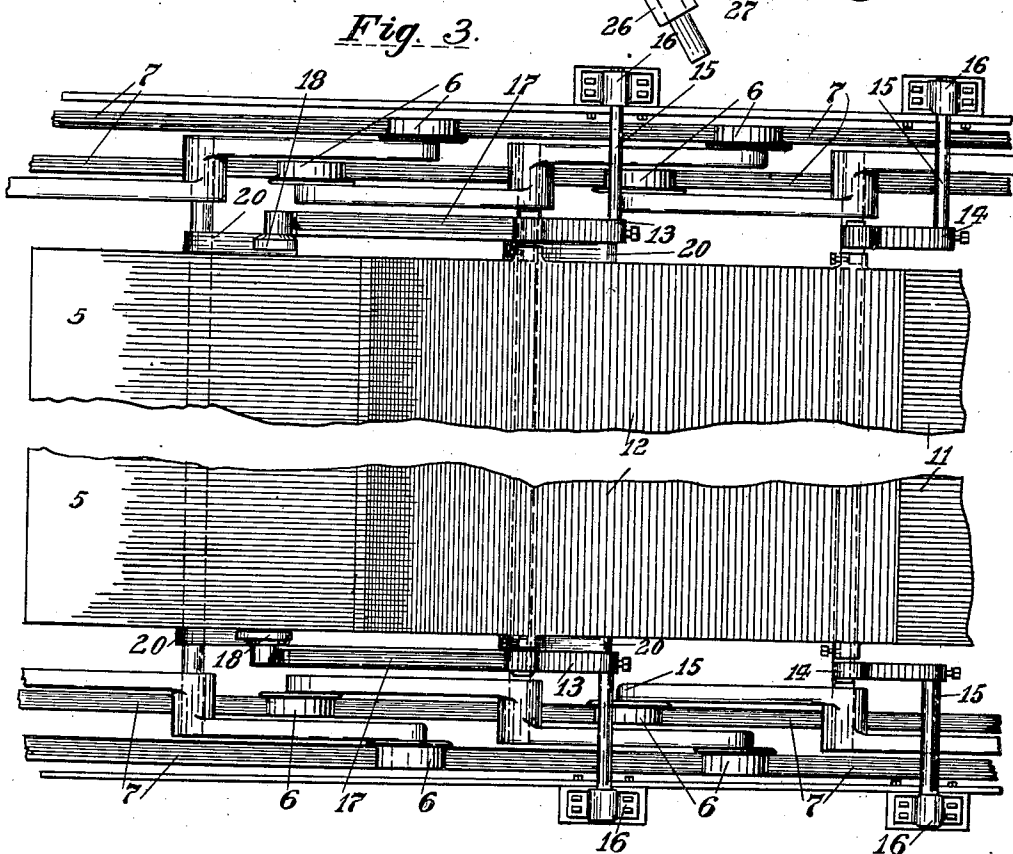


Fig. 3.



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UNITED STATES PATENT OFFICE.

CHARLES D. SEEBERGER, OF YONKERS, NEW YORK.

CONVEYER.

977,047.

Specification of Letters Patent.

Patented Nov. 29, 1910.

Continuation of application filed August 18, 1905, Serial No. 274,807. This application filed April 9, 1906, Serial No. 310,587. Renewed April 25, 1910. Serial No. 557,591.

To all whom it may concern:

Be it known that I, CHARLES D. SEE-
BERGER, a citizen of the United States, resid-
ing at Yonkers, in the county of Westchester
5 and State of New York, have invented certain new and useful Improvements in Con-
veyers, of which the following is a specifica-
tion, reference being had therein to the ac-
companying drawings.

10 My present invention relates to certain improvements in landings for use with con-
veyers, and is designed to produce a station-
ary landing upon which the passenger can
be discharged from the moving conveyer
15 without any possibility of his being tripped
or overthrown.

In carrying out my invention I employ in
connection with a stationary rigid landing
formed by or rigidly secured to the station-
20 ary structure, an intermediate float which is
capable of the slight vertical movement
which may be necessary between it and the
stationary landing, against one end of which
its end abuts, and which is also controlled by
25 the conveyer so that there will be no gap be-
tween its receiving edge and the tread sur-
face, thereby preventing any possibility of
shoe soles, skirts, etc., catching or wedging
between the tread surface and the receiving
30 edge of the float as the passenger is dis-
charged upon the float.

My invention is further concerned with
the same float, provided with means whereby
its vertical position with relation to each
35 step as it passes beneath it is accurately de-
termined in advance by the step itself, so
that when the step reaches the receiving end
of the float, it will be at just the right height
to exactly coöperate with the step.

40 To illustrate my invention, I annex hereto
two sheets of drawings in which the same
reference characters are used to designate
identical parts in all the figures, of which—

Figure 1 is a central longitudinal section
45 through the upper end of the ordinary type
of moving stairway showing my invention
applied thereto: Fig. 2 is a side elevation of
the body portion of three steps detached,
with my invention applied thereto; and Fig.
50 3 is a top plan view of the same but with the
wheels and tracks also shown.

The steps 5 are of the customary con-
struction, such as are shown in my applica-
tion No. 79,520, filed October 22, 1901, being

mounted upon the wheels 6, which roll upon 55
the customary tracks 7, the steps being con-
nected by the rack links 8 with which the
driving spur gear 9 meshes in the customary
manner to advance the steps as power is ap-
plied to the spur gear. 60

Of course it will be understood that I do
not confine my invention to the employment
of the particular form of steps shown and
method of driving them, and in some fea- 65
tures I do not confine it to the employment
of steps at all, as a continuous tread or car-
rying surface might be employed instead of
the separate steps shown.

The steps 5 are in the same horizontal
plane at the upper end to form the moving 70
landing at the upper horizontal portion,
which landing may be of any desired length,
varying from a fraction of a step to the sev-
eral shown, and before they pass around the
end 10 on their return movement, they pass 75
beneath the stationary portion 11 of the land-
ing which consists of a plate supported at
its sides or far end, or both, from the sta-
tionary structure in which the moving stair-
way is mounted. 80

Interposed between the stationary landing
and the tread surfaces of the steps forming
the moving landing is the float 12, which
consists of a thin plate extending across the
tread surfaces of the steps, and preferably 85
having its forward edge beveled. This plate
or float rests at its receiving edge upon the
tread surface of the step beneath it, and may
be held by any suitable mechanism which
permits it to have a slight vertical movement 90
to accommodate itself to steps whose hori-
zontal tread surfaces are on slightly differ-
ent levels, and by which it is held from any
material longitudinal displacement. I pref-
erably control the movements of the plate 12 95
by pivoting it at both sides to the parallel
links 13 and 14, whose other ends are suit-
ably pivoted by means of the rods 15 to the
brackets 16 supported in the frame-work
outside of the tracks 7. This mounting of 100
the float will be readily seen to permit of
the slight vertical movement thereof that
may be necessary to accommodate it to steps
having tread surfaces of different heights
while preventing any possibility of its being 105
displaced far enough longitudinally to inter-
fere with its functions.

As shown in Fig. 2, the receiving edge and

the bottom of the rear end of the float are preferably slightly below the level of the under side of the main portion of the float. With this arrangement, in the event that the

5 step beneath the main portion of the float is higher than the one its receiving edge is over, a clearance is provided for such higher step so that the front edge of the float will not be lifted up and cause a gap thereat.

10 Preferably, however, I provide mechanism whereby each step controls the position of the forward edge of the float so that as the step passes beneath said forward edge the latter will be at a proper height to just permit the clearance of the step and prevent

15 the possibility of anything that is likely to be in the vicinity from getting between the step and the float. For this purpose, I secure to the arms 13 the arms 17, preferably

20 forming them integral therewith, whose outer ends are provided with contact points, preferably taking the form of anti-friction rollers 18; and upon the side brackets 19 of each step, I adjustably secure the controlling

25 plates 20, which may be conveniently secured, so as to be vertically adjustable, by the set screws 21 passing through slightly elongated vertical slots 22 formed therein and taking into the brackets 19. From a

30 consideration of the relation of these parts as shown in Fig. 2, it will be apparent that just prior to the time that the forward edge of any step reaches the adjacent edge of the float the anti-friction rollers 18 will strike

35 the controlling plates 20 which have been carefully adjusted for each step at such a distance below its tread surface that when the forward edge of the step reaches the edge of the float, the latter will be elevated to

40 just the right height to permit the clearance of the step without producing a gap. The reason for employing this mechanism is the fact that it is very difficult to get the tread surface of each step at exactly the same

45 height above the rails, and by providing the adjustable controlling plates, the desired accuracy can be secured more readily and certainly than by depending on the accurate manufacture of the steps. These controlling

50 plates may be extended, if desired, as indicated in dotted lines at 23 in Fig. 2, so that they extend entirely across the step, and so that the float is at all times controlled by the height of the passing steps.

55 In case the controlling mechanism is not employed, and the receiving edge of the float is allowed to rest on the tread surfaces of the steps, I bevel off the forward edge of each step a trifle, as indicated in dotted lines

60 at 24 in Fig. 2, so that in case a step with a high tread surface should follow a low one, the receiving edge of the float will not catch on the forward edge of such following step, as would necessarily occur if it were not

65 beveled off.

To do away with the noise caused by the friction of the float on the steps, I may balance it, so that it is suspended with little or none of its weight resting on the steps to cause friction by pressure. A convenient

70 means of doing this is to extend the arm 13 below its pivotal point 15, as at 25, and mount thereon an adjustable sliding weight 26, held by a set screw 27, so that the desired amount of weight or pressure can be

75 accurately regulated.

The above described float is of especial advantage in the comparatively short movable landing I have shown, and it will be apparent that it is of still greater use in the

80 still shorter landings which may be employed, and in those forms of conveyers in which the landing is practically dispensed with, as the object of the movable landing is to afford the passenger an interval of

85 time in which he may leave the conveyer after reaching the top of the incline. If a long movable landing is employed, he has plenty of time to think, and naturally steps off carefully before the end of the movable

90 landing is reached. If on the other hand, the movable landing is very short, or practically dispensed with, he has but little time to think, and it becomes essential to employ a safety device, such as the float, which pre-

95 vents any possibility of his being caught by any gaps, etc., and insures his landing safely no matter how inattentive he may be.

While I have shown my invention as embodied in the form which I at present con-

100 sider best adapted to carry out its purpose, it will be understood that it is capable of modifications, and that I do not desire to be limited in the interpretation of the following claims, except as may be necessitated by

105 the state of the prior art.

This application is filed in lieu of, and in continuation of my co-pending application Serial No. 118,049, filed August 2, 1902, re-

110 newed August 18, 1905, Serial No. 274,807, which I shall abandon, without of course abandoning the invention described and claimed therein and which is hereby and herein reserved and covered.

What I claim as new, and desire to secure

115 by Letters Patent of the United States is—

1. In a device of the class described, a conveyer, a stationary exit landing, and an interposed landing engaging with and controlled by the conveyer.

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2. In a device of the class described, a conveyer, a stationary exit landing, and an interposed landing supported by the conveyer.
3. In a device of the class described, the combination with a conveyer, of a stationary

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- exit landing, and an interposed substantially horizontal landing supported by the conveyer.
4. In a device of the class described, the combination with a moving tread surface, of

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a stationary exit landing, and an interposed landing maintained in substantially horizontal position by the tread surface.

5 In a device of the class described, the combination with a moving tread surface composed of a series of steps having their treads horizontal at the landing, of a stationary exit landing, and an interposed float supported by each step as it passes the receiving end of the float.

10 6. In a device of the class described, the combination with a moving tread surface composed of a series of steps, of a stationary exit landing, and an interposed float whose receiving end is adjusted by each step into intimate relation with the tread of such step as the latter passes under the float.

15 7. In a device of the class described, the combination with a moving tread surface, of a stationary exit landing, and an interposed float resting on the tread surface adjacent the landing.

20 8. In a device of the class described, the combination with a moving tread surface composed of a series of steps connected to move together with their treads in the same horizontal plane at the landing, of a stationary landing, and an interposed float resting on the treads of the steps adjacent the landing.

25 9. In a device of the class described, the combination with a moving tread surface composed of a series of steps connected to move together with their treads in the same horizontal plane at the landing, of a stationary landing, and an interposed float resting on the treads of the steps adjacent the landing and having its receiving edge slightly below the under surface of the main portion of the float.

30 10. In a device of the class described, the combination with tracks, of steps mounted to move thereon and having horizontal treads, and means for driving the steps, of a stationary exit landing, and an interposed vertically movable float resting on the treads of the steps adjacent the stationary landing.

35 11. In a device of the class described, a moving tread surface composed of a series of steps, a stationary landing, and a float the position of which with relation to each step is automatically determined in advance by such step.

40 12. In a device of the class described, a moving stairway the steps of which travel with their treads in the same horizontal plane to provide an exit landing at the top of the stairway, a stationary landing, and a float at the stationary landing the position of which with relation to each step is automatically determined in advance by such step.

45 13. In a device of the class described, the combination with a moving tread surface composed of a series of steps, of a stationary

landing, an interposed float, and means controlled by each step whereby the position of the float with relation to such step is accurately determined in advance by the step.

14. In a device of the class described, the combination with a moving tread surface, of a stationary landing, and an interposed independent float having its receiving edge beveled and resting on the tread surface adjacent the landing.

15. In a device of the class described, the combination with a moving tread surface, of a stationary landing, an interposed float between the tread surface and the landing, and swinging supports for said float.

16. In a device of the class described, the combination with a moving tread surface composed of a series of steps mounted to move together with their treads in the same horizontal plane at the landing, of a stationary landing, an interposed float between the treads of the steps and the landing, and mechanism interposed between said float and each step for accurately positioning the float vertically with relation to the tread of the step as it reaches the float.

17. In a device of the class described, the combination with a moving tread surface composed of a series of steps mounted to move together with their treads in the same horizontal plane at the landing, of a stationary landing, an interposed float between the treads of the steps and the landing, and mechanism for adjusting said float and each step relatively to each other as the step reaches the float.

18. In a device of the class described, the combination with a moving tread surface composed of a series of steps mounted to move together with their treads in the same horizontal plane at the landing, of a stationary landing, an interposed float between the treads of the steps and the landing, and mechanism interposed between said float and each step for accurately positioning the float vertically with relation to the tread of the step as it reaches the float, consisting of a lever pivoted to the stationary frame work and having one end cooperating with said step and the other with the float.

19. In a device of the class described, the combination with a moving tread surface composed of a series of steps mounted to move together with their treads in the same horizontal plane at the landing, of a stationary landing, an interposed float between the treads of the steps and the landing, and mechanism interposed between said float and each step for accurately positioning the float vertically with relation to the tread of the step as it reaches the float, consisting of a lever pivoted to the stationary frame work at one point and to the forward end of the float at another point, and having the third point thereof cooperating with said step.

20. In a device of the class described, the combination with a moving tread surface composed of a series of steps mounted to move together with their treads in the same horizontal plane at the landing, of a stationary landing, an interposed float between the treads of the steps and the landing, and mechanism interposed between said float and each step for accurately positioning the float vertically with relation to the tread surface of the step as it reaches the float, consisting of a lever pivoted to the stationary frame work and having one end cooperating with the float, and the forward end cooperating with an adjustable controlling plate secured on the side of the step.

21. In a device of the class described, the combination with a moving tread surface composed of a series of steps mounted to move together with their treads in the same horizontal plane at the landing, of a stationary landing, an interposed float between the treads of the steps and the landing, and mechanism interposed between said float and each step for accurately positioning the float vertically with relation to the tread of the step as it reaches the float, consisting of a bell crank lever pivoted at its angle to the stationary frame work and pivoted at one end to the float, and having an anti-friction roller mounted on its other end cooperating with an adjustable controlling plate secured on the side of the step.

22. In a device of the class described, the combination with a moving tread surface, of

a stationary landing, an interposed float resting on the tread surface adjacent the landing, and means for balancing the weight of the float to regulate its pressure on the tread surface.

23. In a device of the class described, the combination with a moving tread surface, of a stationary landing, an interposed float resting on the tread surface adjacent the landing, and means for balancing the weight of the float to regulate its pressure on the tread surface, consisting of parallel arms upon which said float is mounted, and an adjustable weight on an extension of one of said arms.

24. In a device of the class described, the combination with a moving tread surface, of a stationary landing, an interposed float resting on the tread surface adjacent the landing, and a counterbalancing arm to regulate the pressure of the float on the tread surface.

25. In a device of the class described, the combination with a moving tread surface, of a stationary landing, an interposed float resting on the tread surface adjacent the landing, and a counterbalancing arm to regulate the pressure of the float on the tread surface and having an adjustable weight thereon.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES D. SEEBERGER.

Witnesses:

EDMUND E. FIELD, Jr.,
W. H. BRADY.