

C. D. SEEBERGER.
CONVEYER.

APPLICATION FILED JULY 15, 1907. RENEWED AUG. 2, 1909.

951,744.

Patented Mar. 8, 1910.

3 SHEETS—SHEET 1.

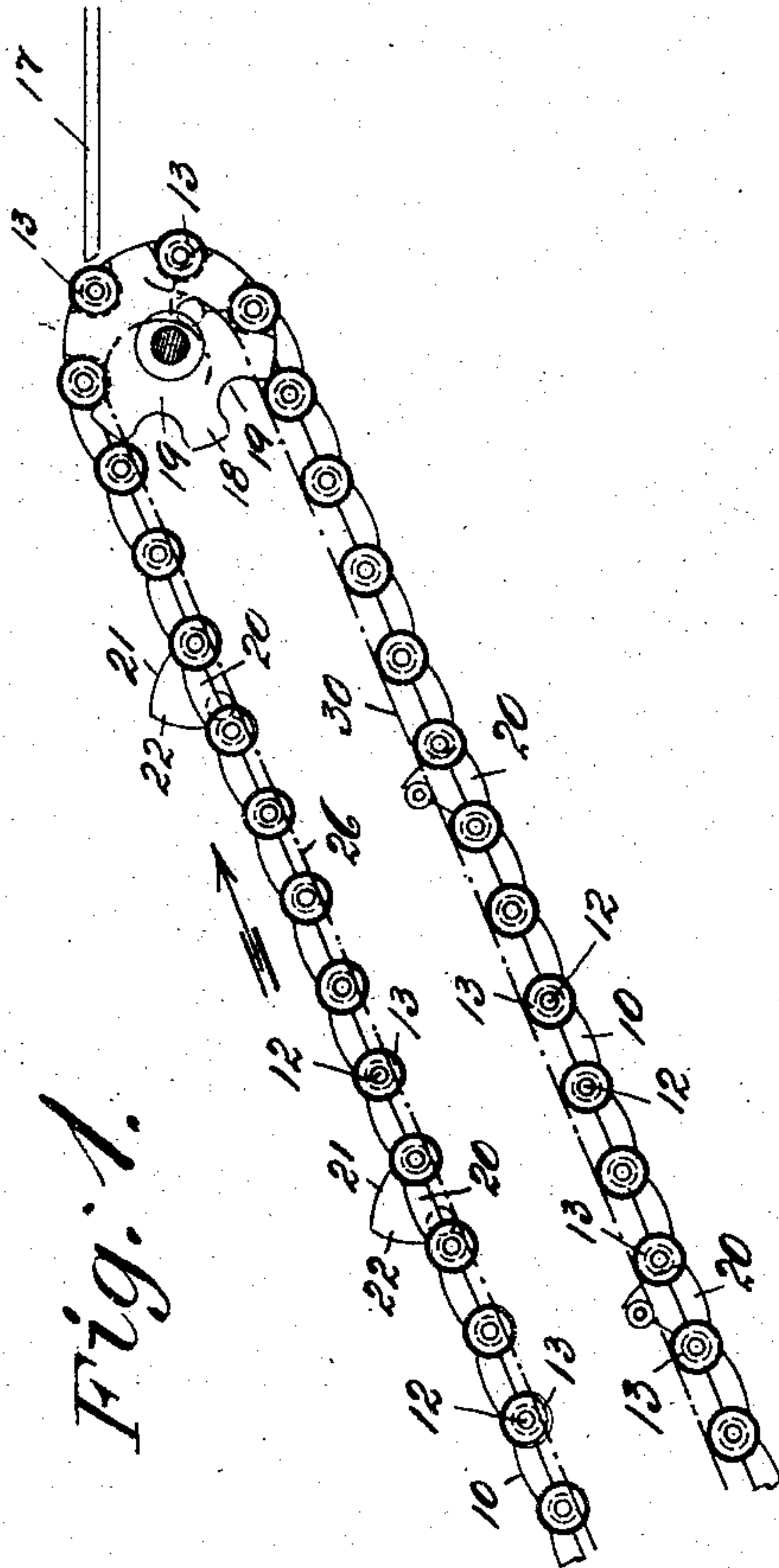
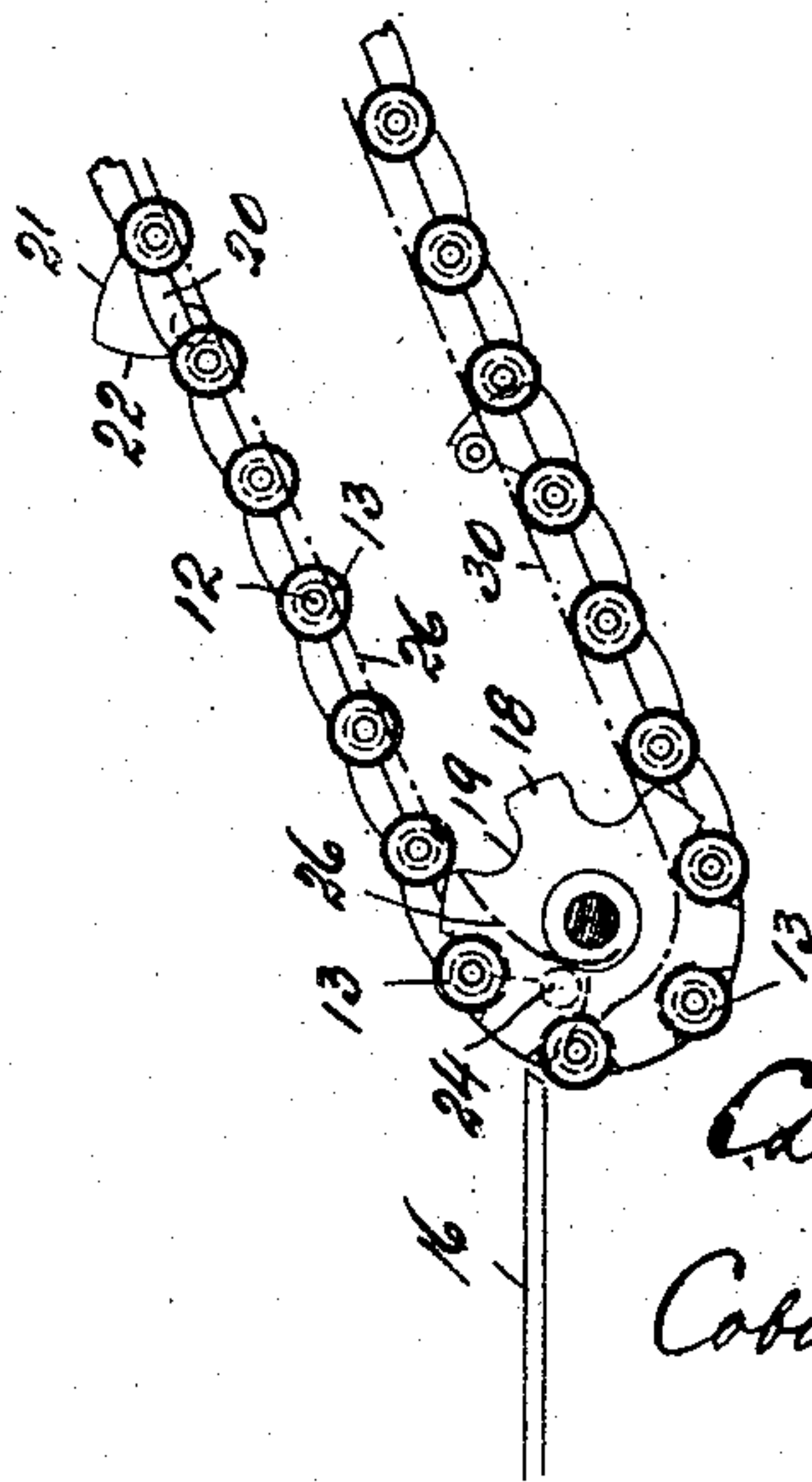


Fig. 1.



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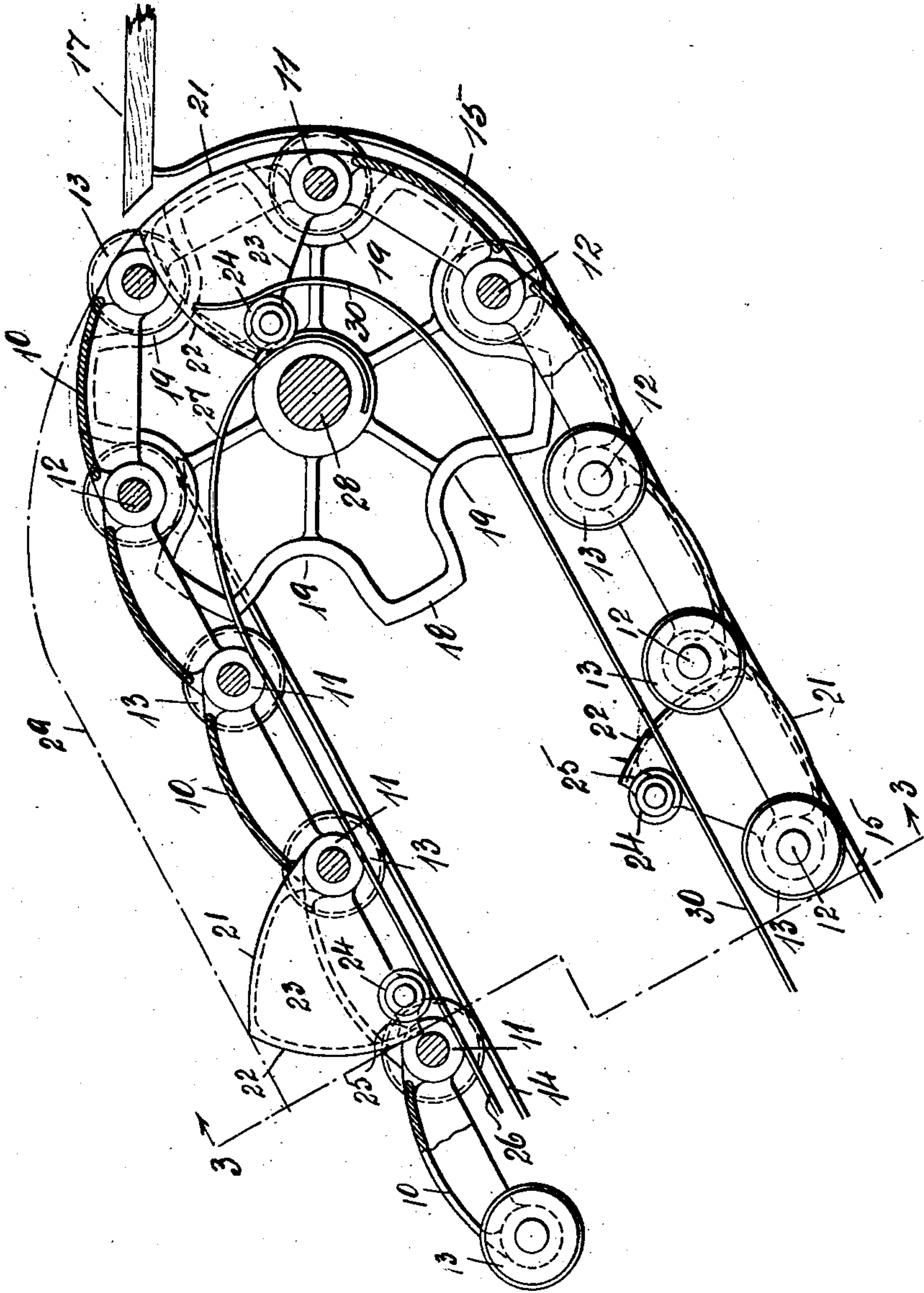
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3 SHEETS—SHEET 2.

Fig. 2.



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3 SHEETS—SHEET 3.

Fig. 3.

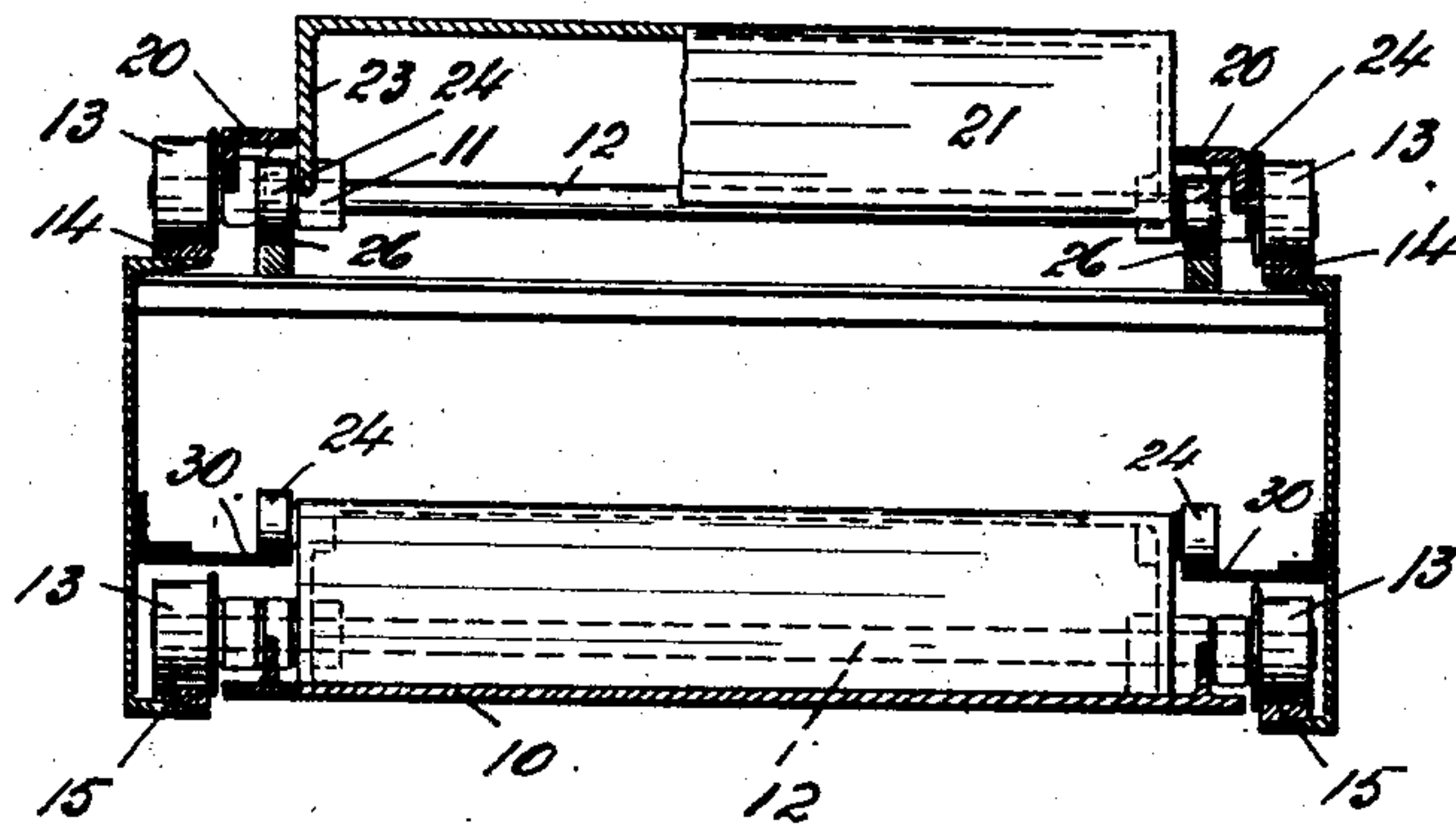
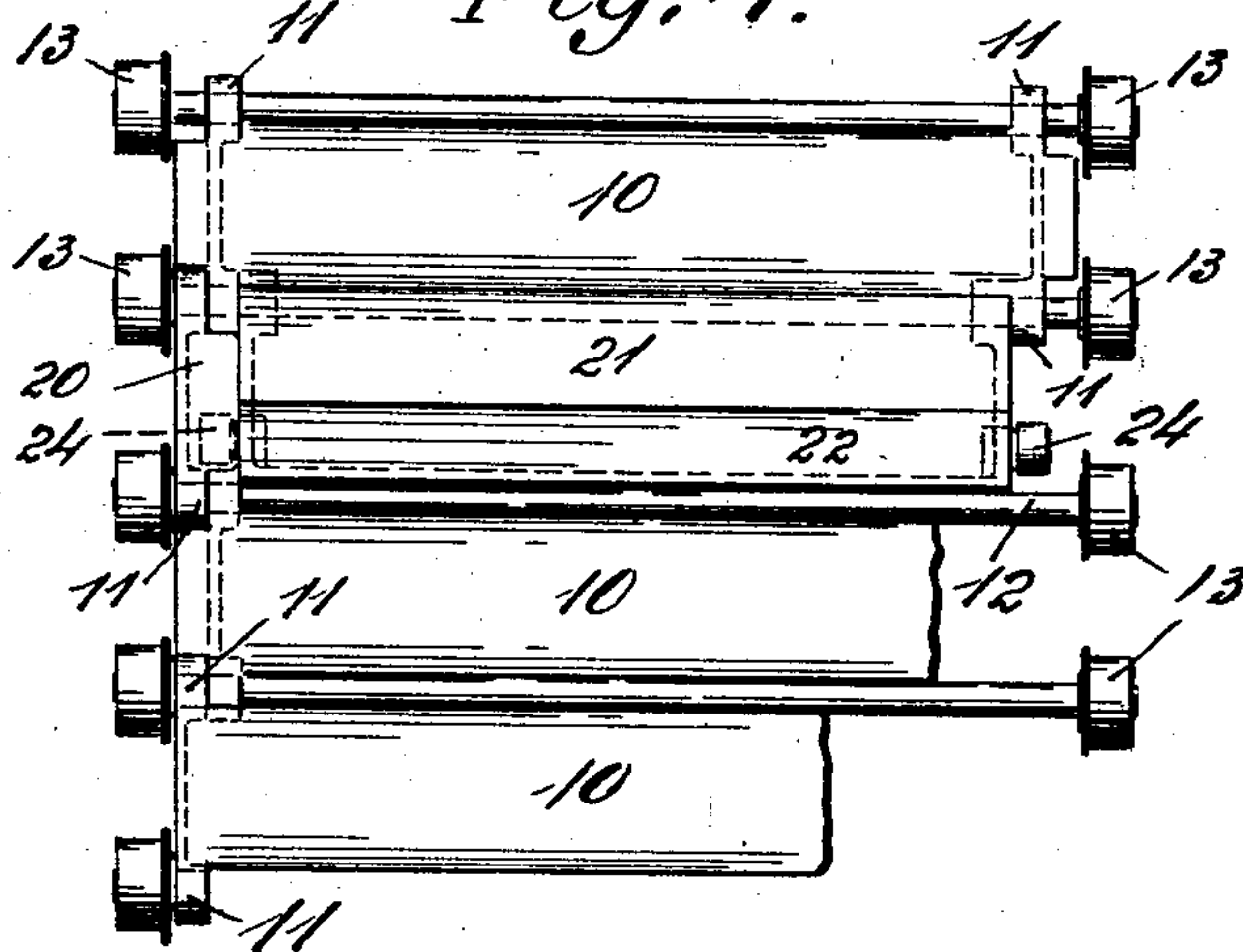


Fig. 4.



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UNITED STATES PATENT OFFICE.

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CONVEYER.

951,744.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, CHARLES D. SEEBERGER, a citizen of the United States, residing at Yonkers, in the county of Westchester and State of New York, have invented certain new and useful Improvements in Conveyers, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to conveyers, and especially to that class of conveyers wherein a traveling carrier or foot-way moves in an inclined run to transport passengers or freight between different levels.

The object of the invention is to provide certain novel and useful features in this class or type of machines, and especially to form a rest or barrier which on the transporting run projects above the line of the conveyer and against which the merchandise may rest or upon which the passengers may stand, and which at the exit landing is bodily lowered into substantially the line of the adjacent portions of the conveyer.

The invention consists in the constructions, arrangements and organizations of parts hereinafter set forth and then pointed out in the appended claims.

In the accompanying drawings illustrating the preferred embodiment of my present invention, Figure 1 is a diagrammatic view of a device illustrating the present invention; Fig. 2 is a central sectional view of the parts taken at the upper end of the incline; Fig. 3 is a sectional view on the line 3—3 of Fig. 2, parts being broken away, and Fig. 4 is a top plan view of a portion of a conveyer showing a barrier and its associated parts with some of the parts omitted and others broken away.

The machine comprises a conveyer preferably composed of a series of connected sections adapted to travel on suitable tracks between different levels to transport passengers or freight in either direction according to the direction of movement of the device. Each section 10 is rectangular in form and is provided with forwardly and rearwardly projecting collars or bearings 11 at their ends to loosely receive suitable axles 12, the ears of adjoining sections being in different vertical planes and lapping and being connected to common axles, as shown in Fig. 4. The axles are provided with wheels or travelers 13 adapted to run upon suitable tracks extending in upper and lower in-

clined runs or ways 14 and 15 between landings 16 and 17 at different levels, as shown in Fig. 1. The tracks terminate adjacent end carriages or reversers at different levels and which in the present form are shown as revolving spiders 18 preferably formed with seats 19 adapted to receive wheels 13.

At predetermined intervals along the conveyer I provide abutment or rests against which merchandise or the wheels of trucks may lodge to safely hold the commodity upon the conveyer, and in the present embodiment these rests are constituted by sections of the conveyer capable of rising up somewhat above the normal line of the conveyer and presenting barriers or blocks on the transporting run. For this purpose certain of the sections are made in skeleton form consisting of end-links 20 connecting a pair of adjacent axles, and pivoted upon the leading axle of each pair (considering the machine to travel in the direction of the arrow in Fig. 1) between the end-links by suitable ears 11 is a barrier or rest which in the present embodiment consists of a tread or body-portion 21, a riser or closure 22 and end-pieces 23. In the view shown in Fig. 4 one of the end-links 20 is omitted to better illustrate the location of the rollers 24, one of which is connected to each end of the riser of each barrier by means of an inwardly directed projection or arm 25 carried by the riser. The barriers preferably extend approximately the width of the conveyer, and upon the carrying or transporting run are adapted to stand above the line or path of the conveyer to form rests or abutments, and at the exit landing are lowered into substantially the line of the conveyer to pass or disappear below the ordinary floor-landing 17. In the form shown the tread or body 21 is curved to conform to the curvature of the spiders 18 for this purpose, and the risers are also curved as shown in order to lie close to the succeeding axle in all positions of the barrier and thereby prevent gaps between these parts during the rise and fall of the barrier. The rollers 24 travel on auxiliary or guide tracks 26 one at each side of the way, and which are inside the supporting tracks 14 and so positioned as to hold the barrier raised or in operative position above the conveyer on the transporting run. In order to accommodate the device to the ordinary floor-landing, as at 17, and so that the latter need

not be provided with any openings through which the barriers disappear, I provide means to automatically lower them at the upper landing. For this purpose the barriers are loosely mounted on their associated axles 12, and the tracks 26 which are inside the spiders are provided with downwardly curved end-portions 27, as shown in Fig. 2. The tracks 14 terminate adjacent the spiders 18, which are arranged in pairs upon a suitable shaft 28 to which they are keyed and by which the machine may be driven from any suitable source of power.

When the barrier reaches the top of the inclined portion of the run or way, the rollers 24 pass around the curved track sections 27, so that the barrier is lowered or folded down to the position shown at the extreme right of Fig. 2. The dotted line 29 in Fig. 2 shows the general path of the barriers, the curvature of the tracks 27 being such as to gradually lower the barriers into the line of the adjacent sections of the conveyer, so that they all pass under the landing 17 in a uniform path.

When the barriers pass around the spiders 18 the rollers 24 pass upon the return guide tracks 30 which hold the treads of the barriers in line with the other sections and prevent them from swinging down upon their axles, as shown in Fig. 2. When the barriers pass around the lower-end carriage at the lower end of the return run, the rollers 24 enter upon the lower end of the track 26 which raises them to operative position as they emerge from below the entrance landing 16.

The present invention eliminates all openings and slots at the landings and enables a conveyer having barriers to cooperate with the ordinary straight or plane-faced floor-landing. For example, in conveyers employing upwardly projecting dogs or arms it is necessary to provide slots or openings at the landing through which the arms or dogs may pass; but with my invention all such openings are avoided and the attendant risks eliminated, as the barriers automatically fold or close down into the path of the carrier and so pass the ordinary floor landings.

It is of course obvious that the barriers are effective at different inclinations of the conveyer, and therefore this form of conveyer is especially applicable to docks or wharves where by reason of differences in tide levels the inclination of the conveyer varies; with the ordinary conveyer there are times of the tide when they cannot be used, as when at low tide the angle of inclination is less than the angle of repose of the commodity transported, but the present form may be used at steep inclines or angles as well as at lesser ones.

While the device is especially adapted for

transporting freight, it may of course be used as a passenger conveyer; each of the barriers constituting in effect a step-section as the part 21 forms a tread surface, and the part 22 a riser. When these parts are curved, the barriers preferably are substantially cusp-shaped. The risers or closures need not be used as these treads 21 form barriers in themselves, but the risers are useful to close all gaps between the treads and successive sections and so are preferred in practice. The barriers may be used in conveyers having horizontal runs, but are especially useful where the run is inclined.

It is obvious of course that where a conveyer extends between three or more landings, as where it passes below one or more intermediate landings, the barriers may be lowered to the line of the conveyer at these intermediate landings by employing my present invention so that they will pass under the intermediate landings and reappear beyond them to again serve as rests upon the run to the next landing. In this arrangement the conveyer would be utilized for service between adjacent landings, and not for through service between alternate or non-adjacent landings.

Having described my invention what I claim as new and desire to secure by Letters Patent of the United States is:—

1. In a device of the class described, a conveyer, a plurality of barriers normally standing above the plane of the conveyer, each comprising a body and integral closure, and means at the terminal to lower the barriers.

2. In a device of the class described, a conveyer, traveling in an inclined path or way between different levels, a plurality of barriers normally standing above the plane of the conveyer, each comprising a body and integral closure, and means at the top of the incline to lower the barriers.

3. In a device of the class described, a conveyer consisting of a connected series of sections traveling in an inclined path or way between different levels, a series of barriers comprising pivoted sections, each section having an integral closure, means to hold the barriers in elevation upon the incline, and means to lower the barriers when they reach the top of the incline.

4. In a device of the class described, a conveyer consisting of a connected series of sections traveling in an inclined path between different levels, certain of the sections being pivotally mounted, each pivoted section having an integral closure, means to elevate the pivoted sections above the plane of the other sections on the incline, and means to lower the pivoted sections into the path of the other sections at the top of the incline.

5. In a device of the class described, a

conveyer traveling in an inclined path between different levels, a series of barriers pivotally mounted on the conveyer, each consisting of an integral tread and curved riser, means to elevate the barriers above the plane of the conveyer on the incline, and means to lower the sections into the path of the conveyer at the top of the incline.

6. In a device of the class described, a conveyer consisting of a series of sections, axles connecting adjacent sections and having wheels adapted to travel on inclined tracks extending between different levels, barriers pivotally mounted on certain of the axles, projections on the barriers, guide tracks with which the projections co-act to hold the barriers in elevation on the incline and to lower the barriers into the path of the conveyer at the top of the incline, each barrier consisting of a tread and integral curved riser.

7. In a device of the class described, a conveyer consisting of a series of sections, axles connecting adjacent sections and having wheels adapted to travel on inclined tracks extending between different levels, barriers pivotally mounted on certain of the axles, projections on the barriers, guide tracks on the incline with which the projections co-act to elevate the barriers and having curved portions to lower the barriers into the path of the conveyer at the top of the incline, each barrier consisting of a tread and integral curved riser.

8. In a device of the class described, a conveyer, a curved end-carriage therefor, a plurality of barriers each consisting of a

plate curved to correspond with the curve of the end-carriage, means to elevate the plates above the conveyer on the transporting run, and means to lower the plates at the end-carriage, each plate having an attached curved riser.

9. In a device of the class described, a conveyer consisting of a series of sections, axles connecting adjacent sections and having wheels adapted to travel on inclined tracks extending between different levels, a reverser at the exit level comprising a pair of connected spiders, curved plates pivoted upon predetermined axles, inwardly projecting arms on the plates, and a guide track on the incline with which the arms co-act, and having at or near the reverser a curved portion for the arms of the plates, and a curved riser connected to each plate.

10. In a device of the class described, a conveyer traveling between different levels in an inclined path, a plurality of barriers on the conveyer, means at one level to raise the barriers above the line of the conveyer, and means at the other level to lower the barriers into the line of the conveyer, each barrier comprising a tread and an integral curved riser.

11. In a device of the class described, a conveyer, and a plurality of cusp-shaped barriers.

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

CHARLES D. SEEBERGER.

Witnesses.

ELIZABETH MOLITOR,
J. McROBERTS.