

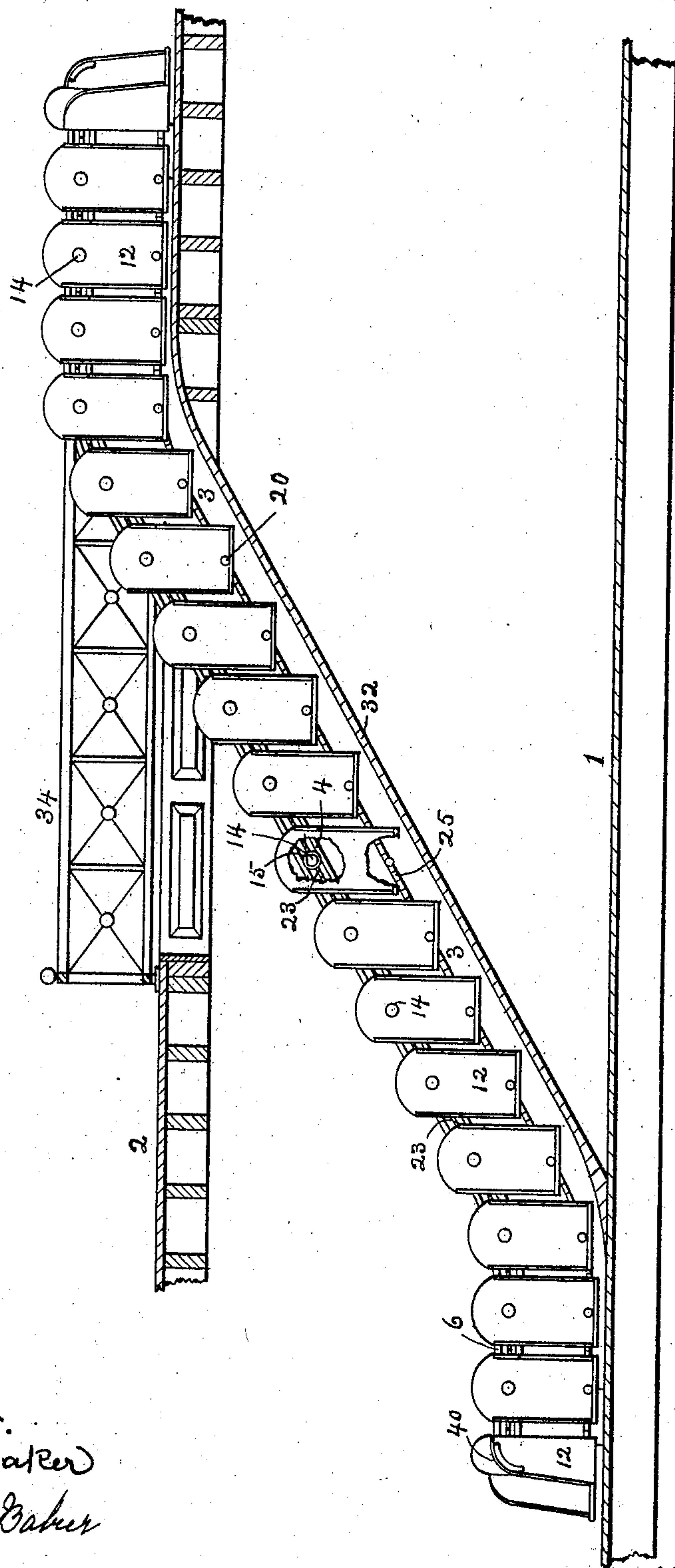
No. 815,834.

PATENTED MAR. 20, 1906.

C. G. HUTCHINSON.
INDIVIDUAL CAR LIFT.
APPLICATION FILED JAN. 17, 1905.

3 SHEETS—SHEET 1.

Fig. 1.



Witnesses.
John Baker
Jesse M. Baker

Inventor.

Charles
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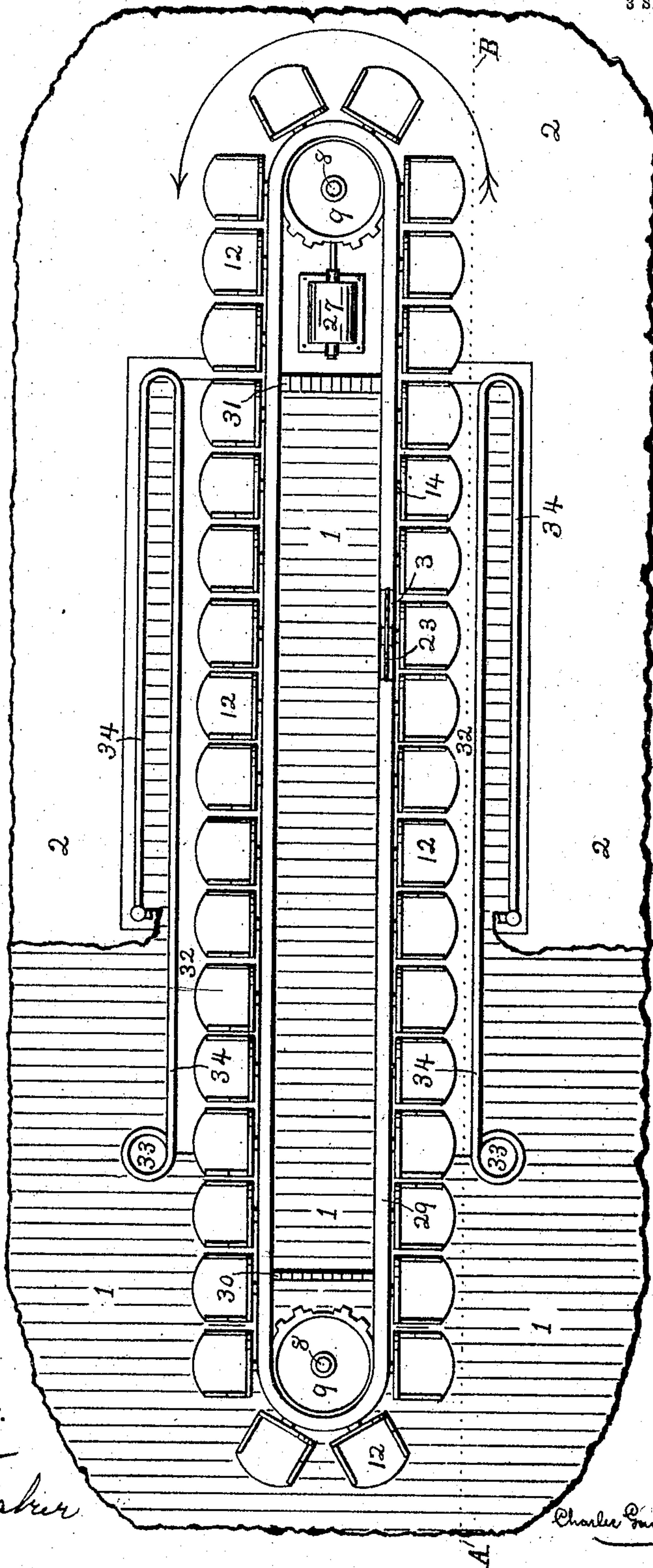
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3 SHEETS—SHEET 2.

Fig. 2.



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3 SHEETS—SHEET 3.

Fig. 3.

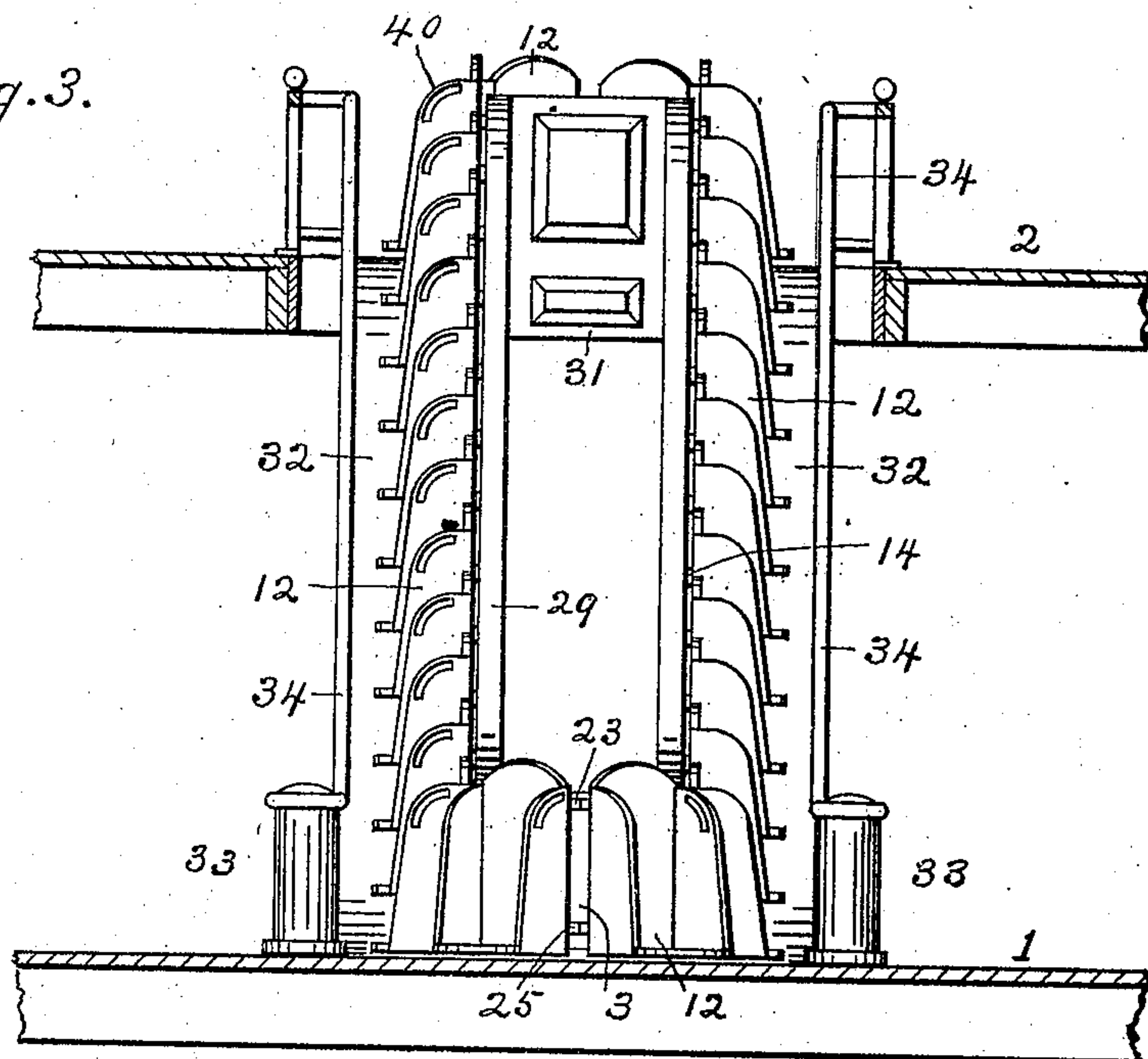


Fig. 4.

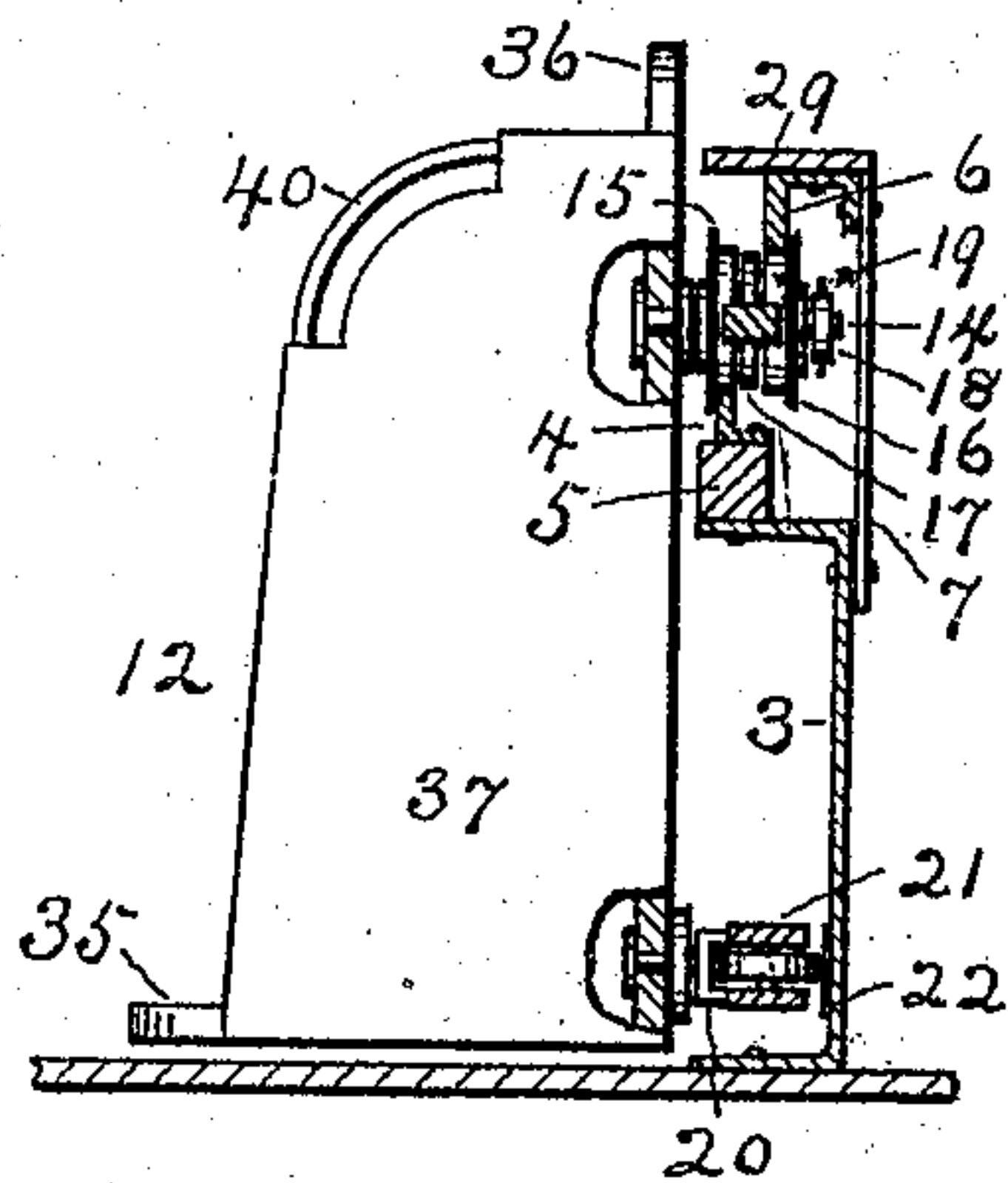


Fig. 5.

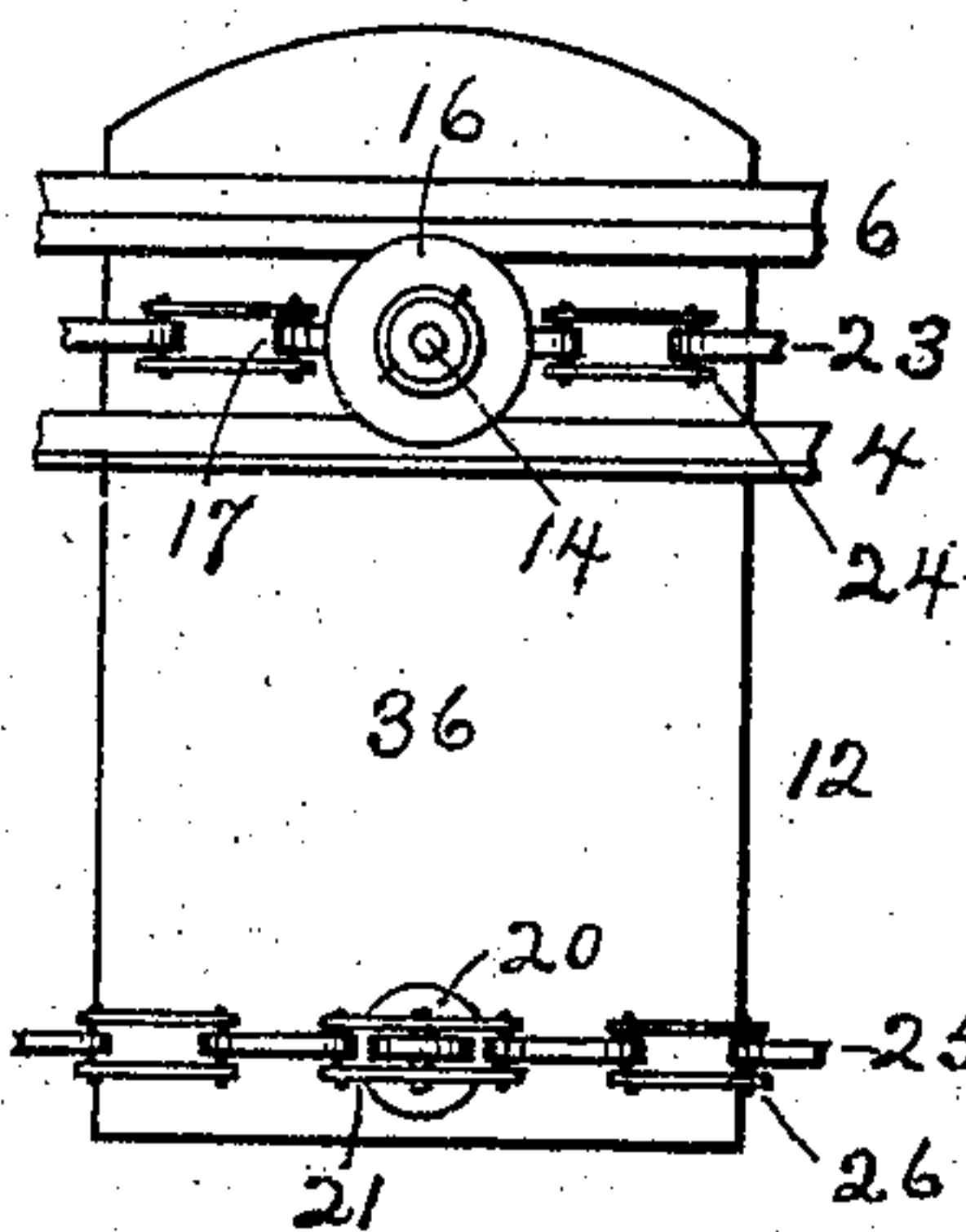


Fig. 6.

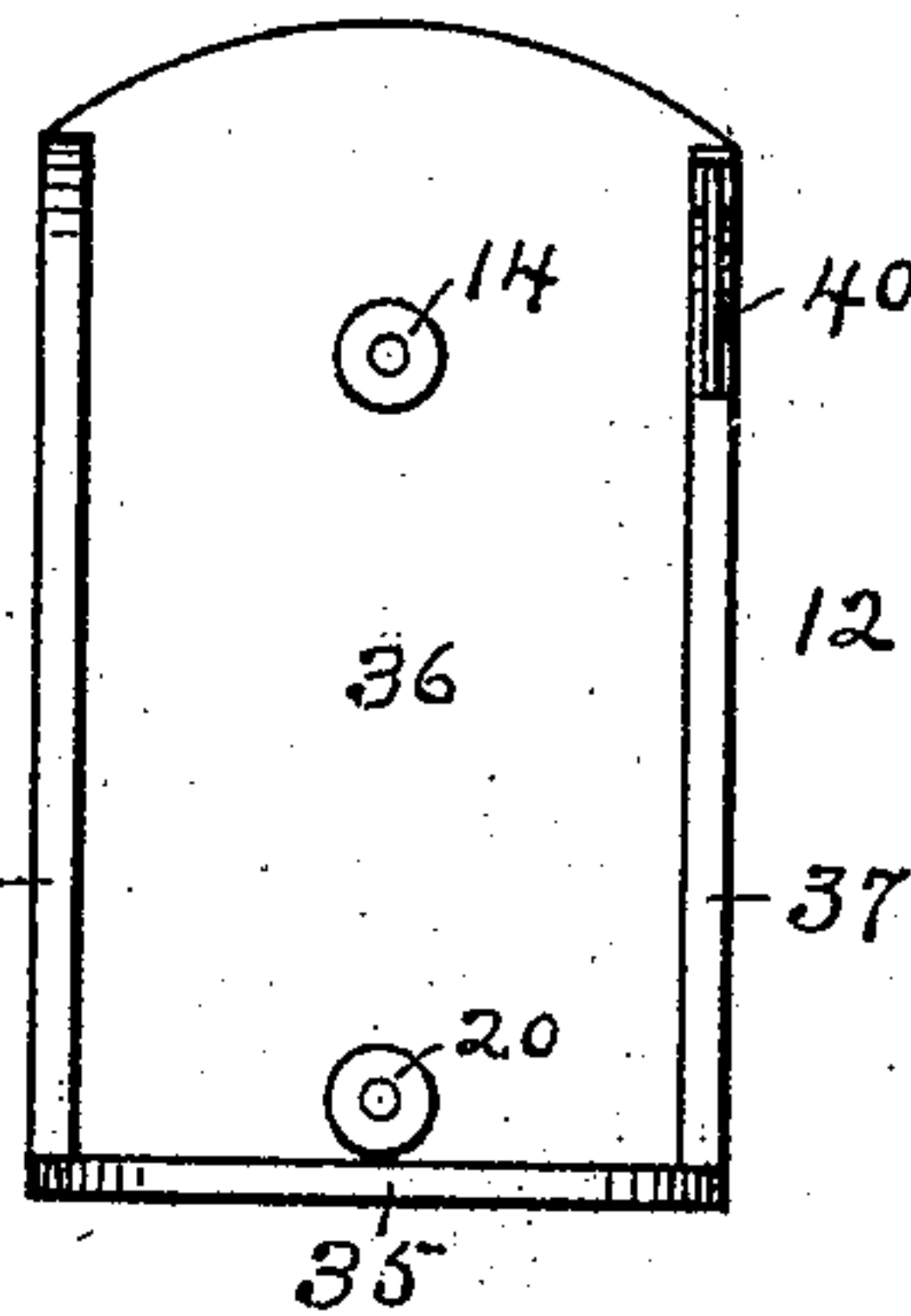
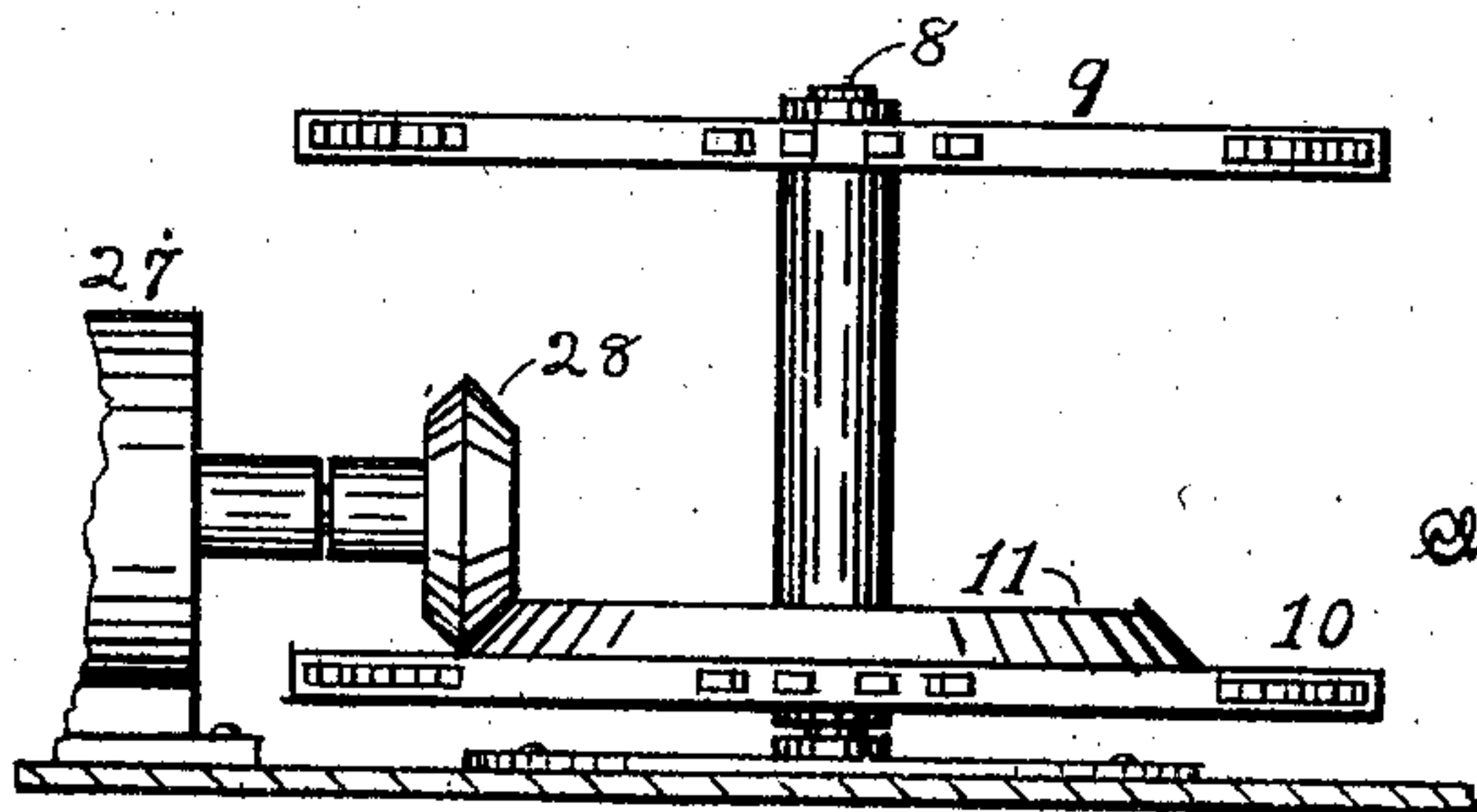


Fig. 7.



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UNITED STATES PATENT OFFICE.

CHARLES GARDNER HUTCHINSON, OF PHILADELPHIA, PENNSYLVANIA,
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INDIVIDUAL CAR-LIFT.

No. 815,834.

Specification of Letters Patent.

Patented March 20, 1906.

Application filed January 17, 1905. Serial No. 241,486.

To all whom it may concern:

Be it known that I, CHARLES GARDNER HUTCHINSON, a citizen of the United States, residing at Philadelphia, in the State of Pennsylvania, have invented a new and useful Individual Car-Lift, of which the following is a specification.

My invention relates to improvements in passenger lifts or elevators in which an endless series of individual cars operate to convey passengers from one elevation to another; and the objects of my improvement are to provide a continuously-conveying car-lift, to provide an individual car for each passenger, and to afford facilities for conveying passengers simultaneously by both the ascending and descending cars. I attain these objects by mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation as it appears from a vertical section on the line A B, Fig. 2. Fig. 2 is a top view of the lift, the second floor being broken away so as to show the entire lift. Fig. 3 is a front end elevation, the second floor being in section through the opening for the lift. Fig. 4 is a side view of an individual car with its supporting and driving mechanism and a sectional view of the lift structure. Fig. 5 is a back view of an individual car with its driving and guiding chains and supporting-rails. Fig. 6 is a front view of an individual car; and Fig. 7, a side view of the motor, driving-gear, and sprocket-wheels.

Similar figures refer to similar parts throughout the several views.

The main structure of the lift, as illustrated in the drawings, consists of two side structural steel channel-beams 3 3, formed so as to extend on an incline from floor 1 to floor 2 with horizontal ends parallel to and firmly secured to those floors and with easy curves at the angles of the incline with the horizontal ends.

A carrying-rail 4 with an intermediate timber-bed 5 to deaden vibration is located on top of each channel-beam 3 3, and these rails and timber-beds are made to conform to the upper contour of the channel-beams, to which they are firmly secured. A guard-rail 6, running parallel with and above the carrying-

rail, is supported on a series of standards 7, which are riveted to beams 3 3 and rails 6.

The structures 3 3 terminate on first and second floors at turning-points, between which are located bed-plates secured to the floors and each supporting a vertical shaft 8. On each of these shafts are mounted to rotate horizontally and extend across the space from structure to structure two sprocket-wheels 9 10, and a driving-gear 11 is also mounted on the second-floor shaft 8 and secured to the said sprocket-wheels thereon.

Each individual passenger-car 12 has a mounting-stud or wheel-axle 14 rigidly secured to the back of the car near the top. On each of these studs 14 are mounted a flanged supporting-wheel 15, which engages the carrying-rails 4, a flanged guide-wheel 16, which engages the guard-rails 6, a chain-link 17, and a collar 18 and pin 19 for retaining the wheels and link in position on the stud.

A caster 20, carrying a chain-link 21, is secured by a swivel-joint to the back of each car near the bottom. The caster-wheel engages a guide 22, formed on the channel-beams 3 3, the function of caster and guide being to keep the cars in an upright position.

An endless series of individual cars 12 are connected and moved by an endless driving-chain 23, which is formed of the stud-links 17 and connecting-links 24, and the cars are guided and kept in position by an endless guide-chain 25, which is formed of caster-links 21 and connecting-links 26.

The cars are operated by a motor 27, mounted on the second floor and provided with a pinion 28, which engages gear 11 to actuate the lift. A cover 29, secured to the structure, runs entirely around the lift and protects the mechanism. An open space is left on the incline between the structures 3 3; but partitions 30 and 31 on floors 1 and 2 isolate the mechanism located at those points.

Inclined floors 32 32, attached to structures 3 3, are laid outside the structures, and these inclined floors are each provided on their outer sides with a newel-post 33 and a partition and hand-rail 34, which partitions and hand-rails extend around the lift-opening on floor 2.

Each individual car consists of a floor 35, a

back 36, and sides 37 38, and each car is provided on its forward side 37 with a hand-grasp 40, which the passenger grasps when boarding and occupying a car.

5 The endless series of individual passenger-cars 12 are attached in close proximity to each other to the endless driving-chain 23, and both the cars and chain are suspended by studs 14 and wheels 15, so as to travel the
10 rails 4 and then be carried around the ends of the lift by the engagement of the teeth of the sprocket-wheels 9 with the links 24 of the driving-chain 23. In like manner the teeth of the sprocket-wheels 10 engage links 26 of
15 endless guide-chain 25. As the chains 23 and 25 pass around their sprocket-wheels the studs 14, with their mountings, and the casters 20, with their mountings, each occupy the spaces between the sets of teeth on the
20 sprocket-wheels. The function of the flanged wheels 16 is to retain the moving parts in position by the engagement of those wheels with the guard-rails 6.

The guide-chain 25 is not intended to be a
25 driver, although it may assist; but its function is to guide and keep the cars 12 in an upright position at all times, so that as passengers enter, occupy, or leave the cars those cars cannot be thrown out of their upright position.
30 The sprocket-wheels located at the turn on floor 1 are like the driving sprocket-wheels at the turn on floor 2; but their function is only to support and guide the cars around that end of the lift.

35 In operation the endless series of individual passenger-cars 12 travel continuously in the direction indicated by the arrow in Fig. 2. The bottoms 35 of the cars travel in close proximity to the landings or floors 1 2,
40 so that a passenger may easily enter or leave a car at those landings. The inclined floors, with their newel-posts, hand-rails, and partitions, are designed to be used only as a protection to the lift and passengers.

45 To ascend by the lift, a passenger enters a car from the first-floor landing by grasping the hand-grasp 40 of a passing car, and stepping onto floor 35 of the car he is now protected and may be comfortably supported by
50 the hand-grasp and three sides of the car, and when the car reaches floor 2 he simply relinquishes the hand-grasp and steps from the car to that landing.

To descend by the lift, a passenger enters a
55 passing car from the second-floor landing, as in the ascent, and leaves the car on the lower landing.

Moving at a moderate speed, with the cars all occupied, the lift is capable of handling
60 several thousand passengers per hour each way.

While I have only illustrated and described my lift as extending between two landings, it may extend to three or more landings, as it

may extend along floor 2 and then up an in- 65
cline to a third floor, or it may ascend an in-
cline at one point, proceed along a level, and
descend at another point.

What I claim as my invention, and desire
to secure by Letters Patent, is— 70

1. In an inclined passenger-car lift, the combination of an endless conveyer-chain, cars pivoted to said chain and hung to one side thereof, means for maintaining the cars sus- 75
pended lateral to the said chain, and an endless guide-chain to which each of the said cars is connected for the purpose specified, substantially as described.

2. The combination in an inclined passenger-car lift, of an endless conveyer-chain, 80
cars pivoted thereto and hung to one side thereof, an endless guide-chain to which each of the said cars is connected, sprocket-wheels located and adapted to engage and actuate said chains, and means for maintaining the 85
said cars suspended at one side of said conveyer-chain, substantially as described.

3. A passenger-lift provided with an endless guideway having inclined and horizontal portions, an endless conveyer-chain mounted 90
to travel on said guideway, cars pivoted to said chain and hung to one side thereof, an endless guide-chain to which each of the said cars is connected, a caster-wheel mounted on each of the said cars, and a fixed guide en- 95
gaged by the caster-wheels, as set forth.

4. A passenger-lift provided with an endless guideway having inclined and horizontal portions, an endless conveyer-chain mounted 100
to travel on said guideway, cars pivoted to said chain and hung to one side thereof, an endless guide-chain to which each of the said cars is connected, sprocket-wheels located and adapted to engage and actuate said 105
chains, a caster-wheel mounted on each of the said cars, and a fixed guide engaged by the caster-wheels, as set forth.

5. A passenger-lift car comprising a car-floor, a car back and two sides extending up only to a height adequate to protect the per- 110
son, a hand-grasp on the forward side, a single wheel-mounting transverse axle secured to the upper part of the said car back for the purpose of laterally and pivotally suspending the said car, and a connecting member se- 115
cured to the lower part of said car back and adapted to connect the car to an endless guide-chain, as set forth.

6. A passenger-lift car adapted to travel both horizontally and up and down an incline 120
and to be occupied by a passenger in a standing position, said car having an open front and top and comprising a car-floor, a car back and two sides extending up only to a height adequate to protect the person, a 125
hand-grasp on the forward side, a single wheel-mounting transverse axle secured to the upper part of the said car back for the

purpose of laterally and pivotally suspending the said car, and a connecting member secured to the lower part of said car back and adapted to connect the car to an endless guide-chain, as set forth.

7. A passenger-lift provided with an endless guideway having inclined and horizontal portions, an endless conveyer-chain mounted to travel on said guideway, cars, said cars being pivotally suspended from said chain, an endless guide-chain to which each of the said cars is connected, and sprocket-wheels adapted and arranged to engage and actuate said chains, substantially as described.

8. In an inclined passenger-car lift the combination of an endless conveyer-chain, an endless series of cars pivotally suspended therefrom, and an endless guide-chain to which each of the said cars is connected, substantially as described.

9. In an inclined passenger-car lift, the combination of an endless conveyer-chain, an endless series of cars pivotally suspended therefrom, an endless guide-chain to which each of the said cars is connected, and sprocket-wheels arranged to engage and actuate said chains, substantially as described.

10. In an inclined passenger-lift, the combination of an endless conveyer-chain, cars pivoted thereto and hung to one side thereof, a guide for maintaining the cars suspended at one side of said chain, and an endless guide-chain to which each of the said cars is secured to guide and keep the cars in an upright position, substantially as described.

11. In an inclined passenger-lift, the combination of an endless conveyer-chain, an endless series of cars pivotally suspended therefrom and hung to one side thereof, each car having a floor and three sides extending up therefrom to a height adequate for the protection of the person, a hand-grasp secured to the forward side of each car, means for maintaining the said cars suspended at one side of said conveyer-chain, and means for connecting the lower part of the said cars to guide them to travel in an upright position, substantially as described.

12. A passenger-lift provided with an end-

less guideway having inclined and horizontal portions, an endless conveyer-chain mounted to travel on the said guideway, cars pivotally suspended from the conveyer-chain, and an endless guide-chain located below said conveyer-chain and to which each of the said cars is connected, as set forth.

13. A passenger-lift provided with an endless guideway having inclined and horizontal portions, an endless conveyer-chain mounted to travel on the said guideway, cars pivotally suspended from the conveyer-chain, each car being suspended by a transverse axle located on the upper part of the car back, and an endless guide-chain located below said conveyer-chain and to which each of the said cars is connected, as set forth.

14. A passenger-lift provided with an endless guideway having inclined and horizontal portions, an endless conveyer-chain mounted to travel on the said guideway, cars pivotally suspended from said conveyer-chain, each car being suspended by a transverse axle located on the upper part of the car back, and an endless guide-chain each car being connected to said chain by a pivot located on the lower part of the car back, as set forth.

15. An element of an inclined passenger-car lift, consisting of an open-top open-front car provided with a floor for a passenger to stand upon, a car back and two sides extending up only to a height adequate to protect the person, a hand-grasp located on the forward side of the car, a single transverse axle secured to the upper part of said car back and adapted to engage a conveyer-chain and mounting-wheel so that the car will hang at one side of said chain, and a connecting member secured to the lower part of said car back and adapted to connect the car to a caster-wheel and to an endless guide-chain, as set forth.

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

CHARLES GARDNER HUTCHINSON.

Witnesses:

JOHN BAKER,
JENNIE M. BAKER.