

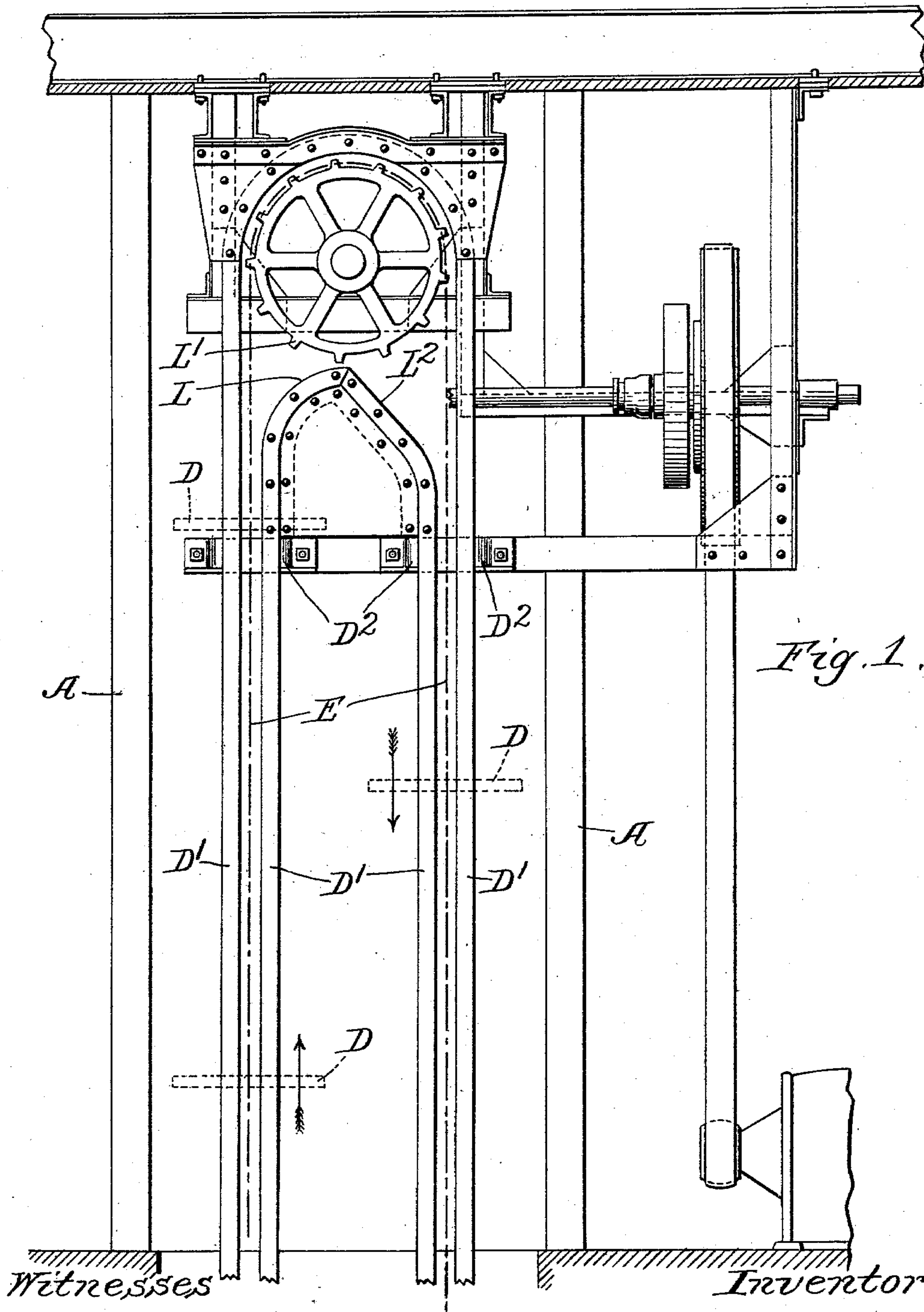
No. 744,097.

PATENTED NOV. 17, 1903.

S. B. PECK.
PACKAGE ELEVATOR.
APPLICATION FILED FEB. 11, 1903.

NO MODEL.

3 SHEETS—SHEET 1.



Witnesses

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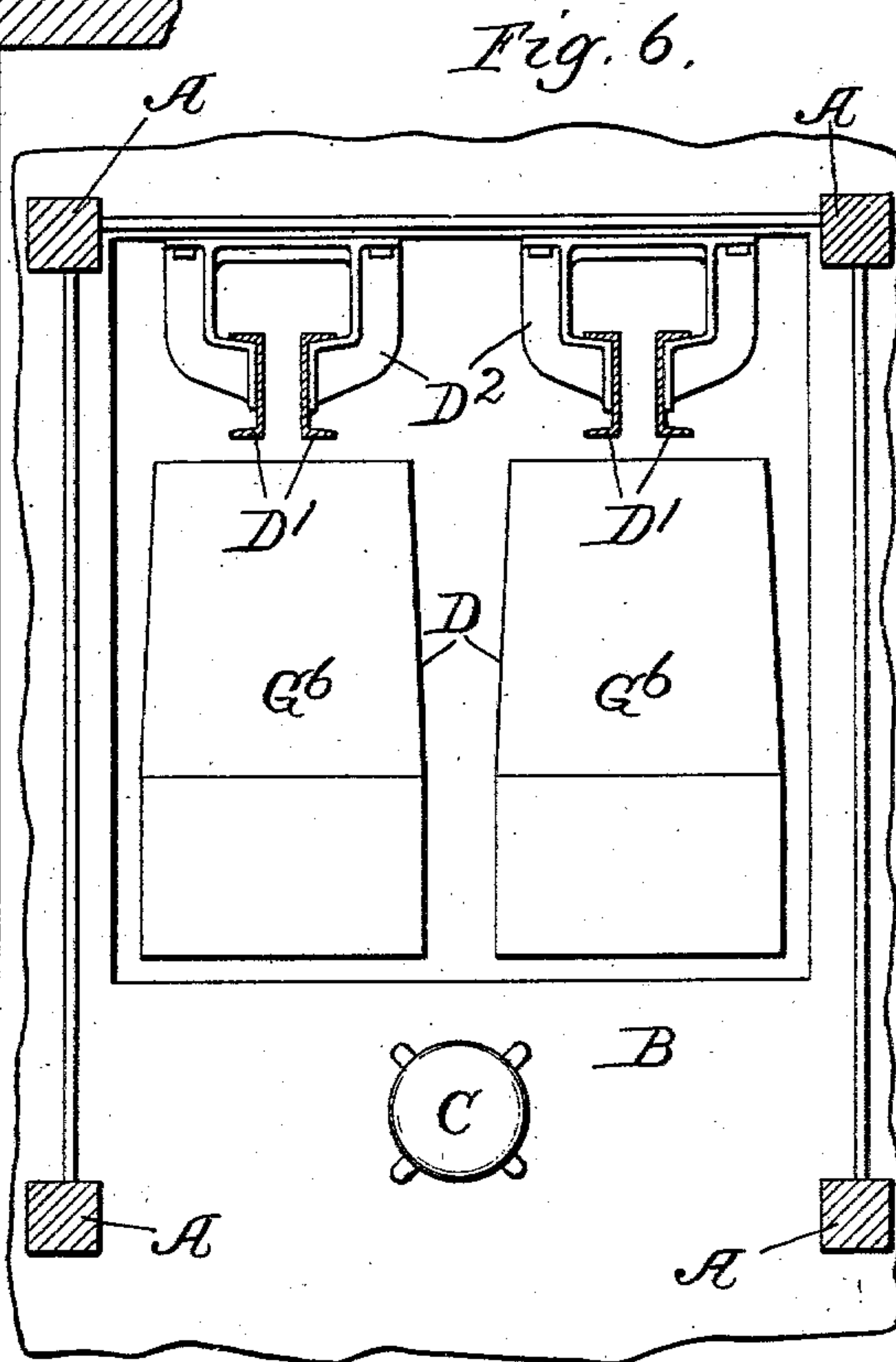
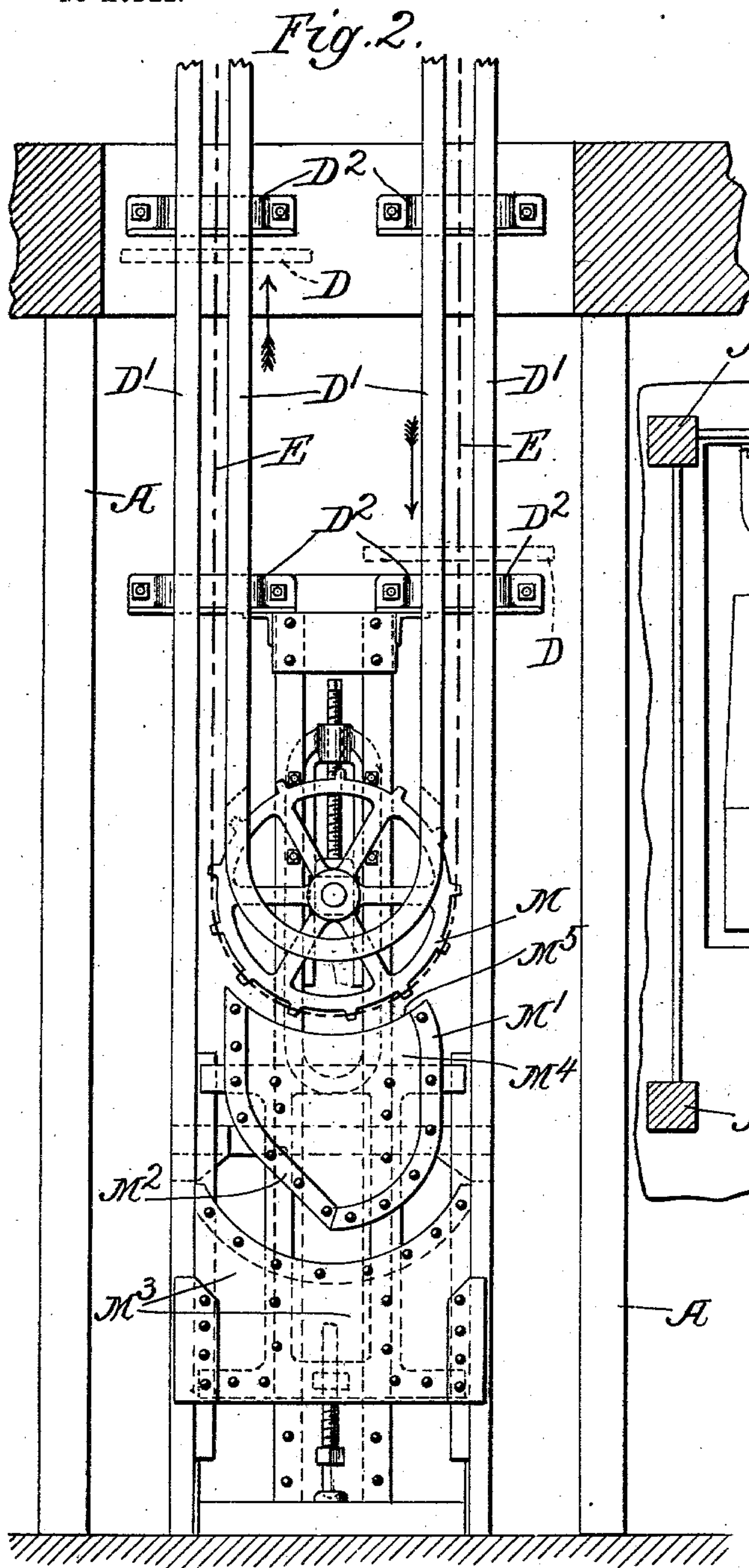
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S. B. PECK.
PACKAGE ELEVATOR.

APPLICATION FILED FEB. 11, 1903.

NO MODEL.

3 SHEETS—SHEET 2.



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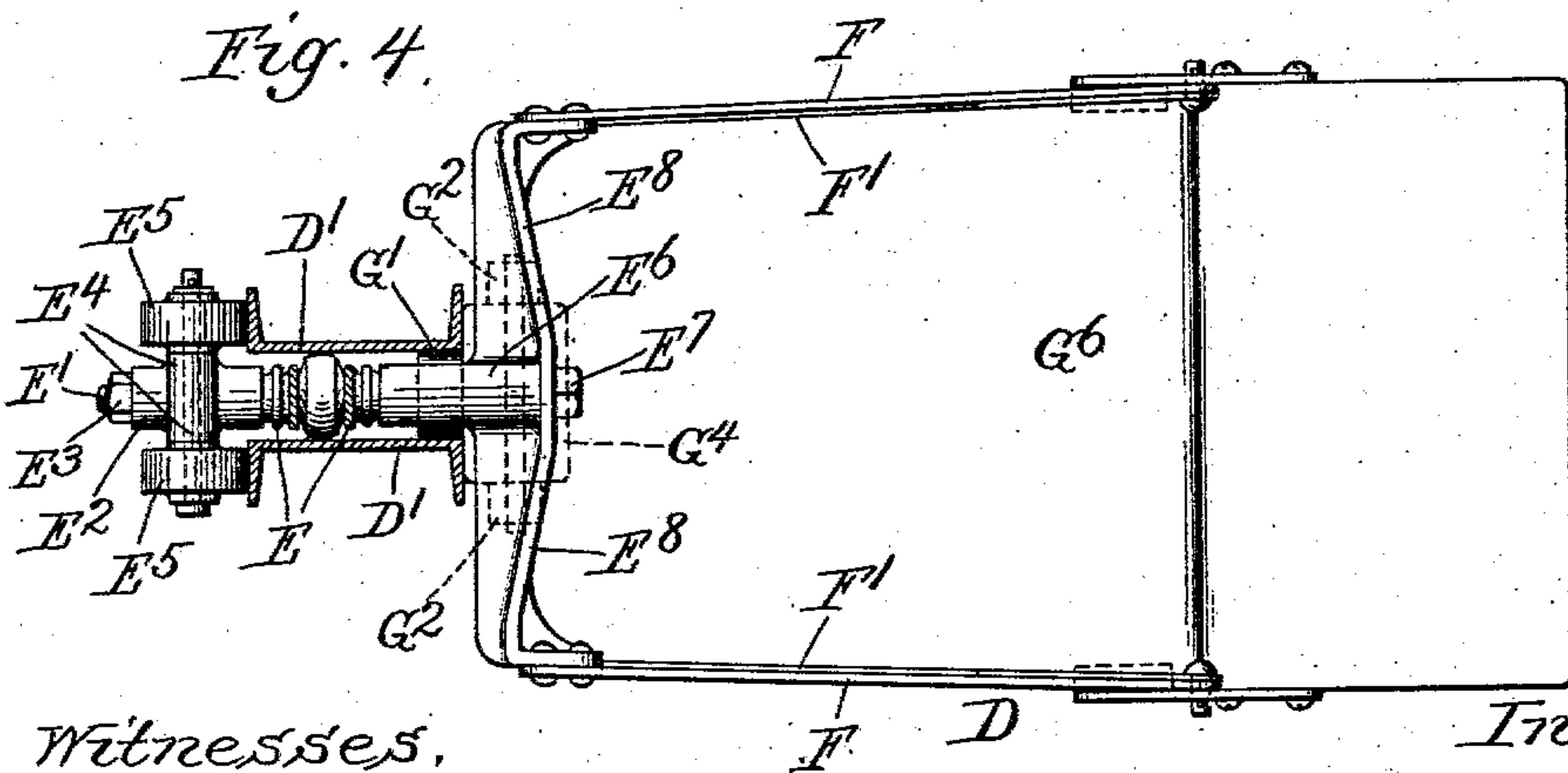
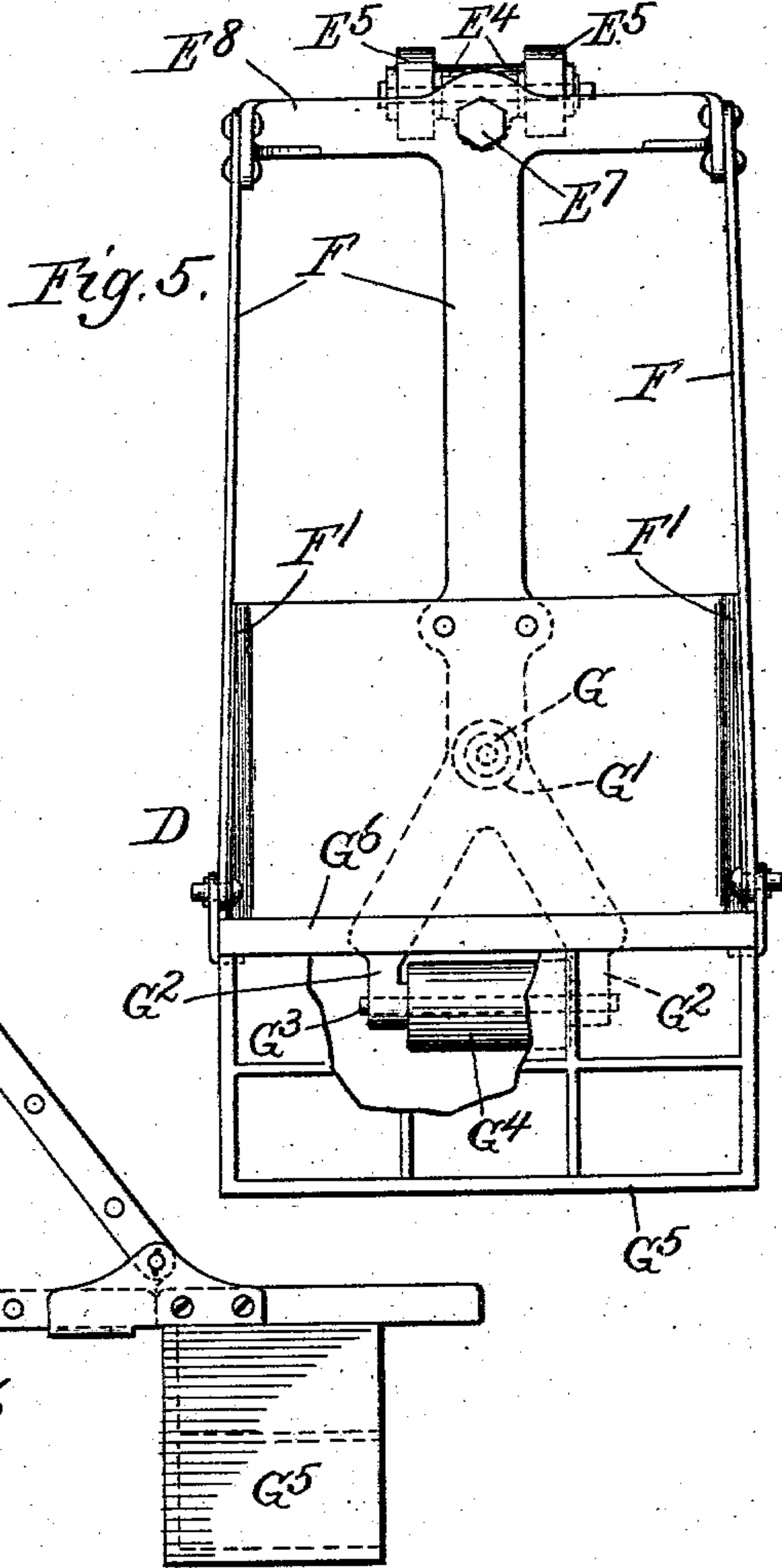
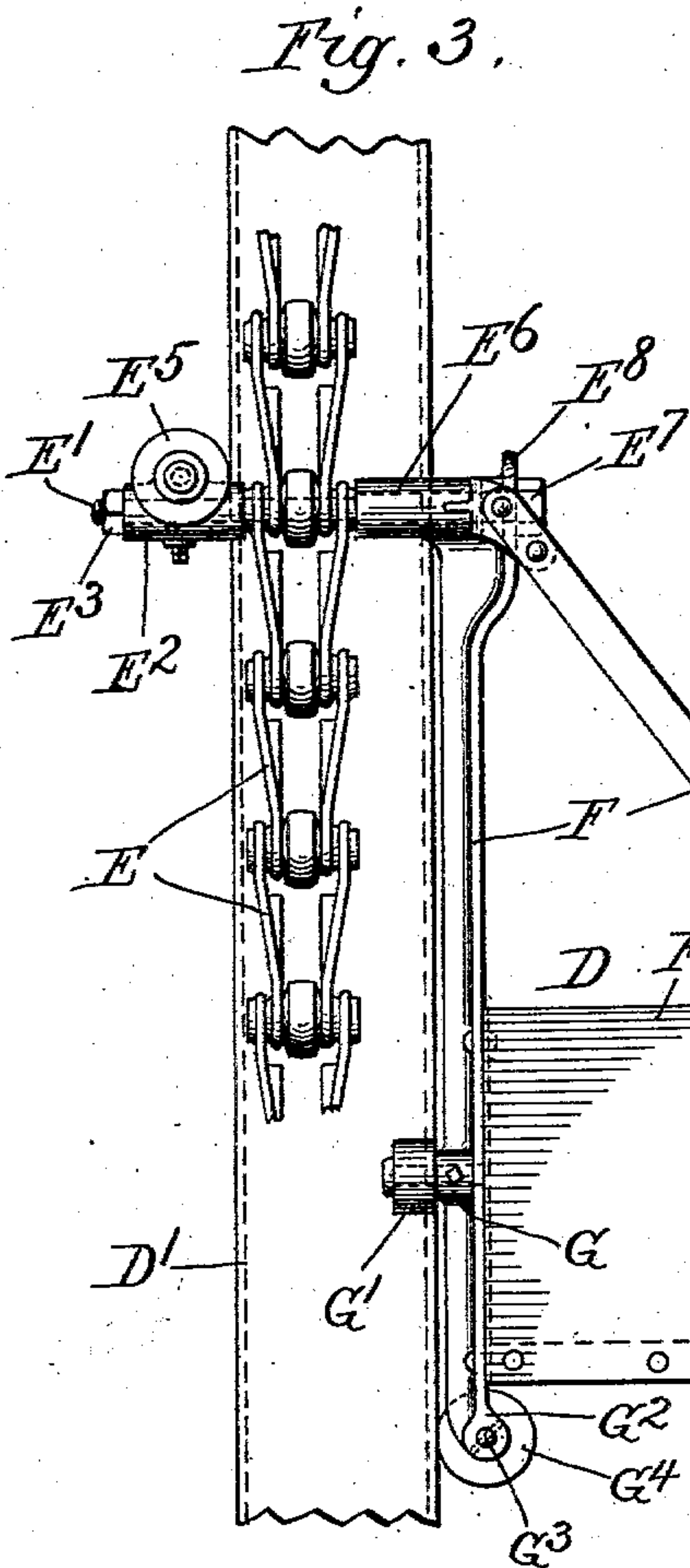
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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

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PACKAGE-ELEVATOR.

SPECIFICATION forming part of Letters Patent No. 744,097, dated November 17, 1903.

Application filed February 11, 1903. Serial No. 142,938. (No model.)

To all whom it may concern:

Be it known that I, STAUNTON B. PECK, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Package-Elevators, of which the following is a specification.

My invention relates to package-elevators, and has for its object to provide certain new and useful improvements therein.

In certain forms of package-elevators—as, for example, in those intended to be used in large buildings, where many small packages are constantly being handled—it is desirable that the apparatus should be so arranged that one operator sitting in one position can conveniently load both the ascending and the descending trays.

My invention relates more especially to elevators of this description.

I have shown in the accompanying drawings my invention as applied to a particular form of apparatus, though it will be understood, of course, that these drawings are to be taken as diagrammatic.

Figure 1 is a front elevation of the upper portion of the conveyer apparatus with parts removed. Fig. 2 is a similar view of the lower portion thereof. Fig. 3 is an enlarged detail side view of the tray. Fig. 4 is a plan view of the same. Fig. 5 is a front elevation. Fig. 6 is a cross-section and plan view of the shaft and trays.

Like parts are indicated by the same letters in all the figures.

A A are the posts which surround the shaft, B the floor-space at one end thereof, and C the seat or place to be occupied by the operator. D D are trays placed side by side and associated each with a pair of channel-irons D' D', placed with relation to each other, as shown, and held in position by the braces D² D². E is the chain, which is provided at a certain point with a bolt E'. The chain lies between two channel-irons D' D' and the bolt projects beyond them in both directions. Toward the rear the bolt passes through a tube E² and is secured by a nut E³. The tube has on its upper side laterally-projecting tubular arms E⁴ E⁴, on each of which is mounted a roller

E⁵ E⁵, and these rollers bear against the rear faces of the channel-irons D', as indicated. The same bolt E' extends forwardly beyond the flanges of the channel-irons and passes through a tubular projection E⁶ and is secured by a nut E⁷ to the cross-piece E⁸ of the tray-frame. The tray-frame is composed of several frame-pieces F F. At its lower portion it preferably has the side pieces F'. Rearwardly projecting from its rear central frame-piece F is the stud G, which passes in between the channel-irons D' D' and carries the roller G', which rides upon their inner opposed faces, so as to keep the lower end of the tray-frame from rocking. The central frame-piece F is bifurcated below and provided with two arms G² G², which are connected at their lower ends by the cross-pin G³, on which is supported the roller G⁴, which engages the forward faces of the channel-irons. G⁵ is the mail-box carried on the lower side of the tray. G⁶ is the bottom of the tray. It will be observed from this description of these parts that the tray is mounted so as to be very firmly carried and yet so as to project forwardly entirely beyond and away from the plane of travel of the two branches of the chain. It is supported, first, by the rollers which take against the inner edges of the channel-irons above; second, by the rollers which take against the forward edges of the channel-irons below, and, third, by the roller which travels between the channel-irons so as to steady the tray. Thus the tray can travel up and down, loaded or empty, receiving its load and having the same discharged without in any manner interfering with the regular action of the device or unduly cramping or throwing out of alinement the chain and operative parts. The tray may be of any desired size, shape, or form, the form I have shown being one adapted for a mail-order department-store business, where small packages are handled and also mail-packages.

It is of course necessary now to explain in what manner the trays change their direction of motion at the top and bottom of the elevator-shaft, and for this purpose reference is had to Figs. 1 and 2. The outer channel-iron D' of each set of two preferably runs in

a direct line from the top to the bottom of the shaft, being secured in any desired manner. The inner channel-iron D' of the left-hand set, as shown in Fig. 1, being the set
 5 along which the tray travels upwardly, is bent inwardly at the top, as indicated at L , so as to form the arc of a circle approximately the same as the arc of the circuit of the sprocket-wheel L' , around which the
 10 chain is to travel. The inner channel-iron of the other set is downwardly depressed, as indicated at L^2 , so that while the tray tends to remain in an upright position while it has passed half-way around the head-wheel, be-
 15 cause of the similarity of the two arcs along which its respective rollers travel, on the descent it hangs free, so as to permit it to be held in the proper position by gravity. The parts, however, are properly guided by the
 20 action of the roller G' , engaging the face of the part L^2 and then passing down between the bars $D' D'$, so that as the chain descends on the other side all the parts come into their proper relative position. When the tray ap-
 25 proaches the bottom of the shaft the chain travels around the sprocket-wheel M , and here the inner channel-iron on the descending side is preferably bent and may be carried around and formed continuous with
 30 the channel-iron D' on the ascending side. Here of course the lower part of the tray hangs down and is to be guided by the lower channel-bar portion M' , shaped as shown, until it reaches the lowest point of descent.
 35 It is then guided by the channel-bar portion M^2 , shaped as shown.

M^3 is an extended flat surface adapted to allow the long roller G^4 to slide along over its surface as the tray passes from one side to
 40 the other. These several parts are properly supported and made adjustable.

The two channel-bar portions $M' M^2$ may be associated with plates M^4 and the whole worked up into a construction which will pro-
 45 duce an arc-shaped surface M^5 , in close proximity to which or between which and the sprocket-wheel M the chain travels. This practically places the chain in a continuous box or channel, so that if it breaks at any
 50 given point it has no tendency to fall out, but can only slightly contract and will remain in position, so that its parts may be drawn together and repaired.

The roller E^5 bears against the back sur-
 55 face of the rails D' . The roller G^4 bears against the front surface of these rails far below the roller E^5 , thus keeping the tray from falling away or its forward end from sagging down, and the roller G' travels be-
 60 tween the two members of the rail $D' D'$, so as to keep the tray from swinging laterally. Thus the bottom of the tray is held at all points in a horizontal position. The groove between the parts M' and M^3 at the lower
 65 part of the elevator-shaft is removed a distance from the surface of the sprocket-wheel equal to the distance from the shaft to the

axis of the roller G' , so that while the upper portion of the tray-support is being carried along with the chain the lower guiding-roller
 70 G' is traveling in the opening between M' and M^3 . The rails are bent aside at M^2 and L^2 for the purpose, as above stated, of enabling the tray after it has passed the central axis of the elevator-shaft to hang free by the ac-
 75 tion of gravity.

I have shown a set of devices intended to prevent the trays from cramping the chain. Obviously other devices could be substituted for this purpose, and it is not necessary to
 80 have the chain traveling in a channel, though I think this is the best form of my invention. I have used the term "package-elevator" simply to indicate that for the most part my invention would be applied to such, though
 85 of course it is applicable to any kind of elevator. I have used the term "roller" in several instances, but mean, of course, to use it in a broad sense. For example, a guide block or slide would be the equivalent of the
 90 roller in such a device.

The use and operation of my invention are as follows: When under the circumstances above referred to it is necessary to have a
 95 package-elevator with two trays which can be operated conveniently by one person, the arrangement here shown can be used, and it will contain the essential features of my in-
 100 vention. When the packages are placed upon the tray, it will be of course in motion, either ascending or descending, and will be held, as above shown, in such a position as not to rock in either direction or tilt, so as to
 105 cramp or force the chain out of alinement. At the same time the two trays will move in parallel lines in front of the operator. The trays are arranged so that they always have
 110 the same side up and so as to project laterally from the plane in which the two chains are traveling. The trays also maintain their upright position in ascending or descending and passing over the head or foot wheel. The length of the chain may be adjusted as
 115 indicated, and the chain will be held in its channel even when broken.

The lower sprocket-wheel is vertically adjustable; but it is not deemed necessary to make the lower curved end of the inner rail D' adjustable. Therefore they will change
 120 their relative positions, and when such portion of the rail D' is not in the proper position the roller E^5 will pass free from such rail as it moves around the lower circle.

I claim—

1. In a package-elevator, the combination
 125 of a continuously-traveling chain, with trays supported thereby and projecting therefrom to one side of the plane in which the two branches of the chain are traveling.

2. In a package-elevator, the combination
 130 of a continuously-traveling chain, with trays supported thereby and projecting therefrom to one side of the plane in which the two branches of the chain are traveling, and sup-

porting devices whereby the trays are prevented from forcing the chain out of alinement.

3. In a package-elevator, the combination of a traveling chain, with a substantially continuous channel or path in which it travels, the diameter of the chain approximately equal to the width of the channel, so that the chain is retained in position even when broken.

4. In a package-elevator, the combination of a traveling chain, with a channel in which it travels, a tray-frame mounted on the chain, and two rollers connected with such frame, one on each side of the channel, so as to prevent the tray from forcing the chain out of alinement.

5. In a package-elevator, the combination of a traveling chain, with a channel in which it travels, a tray-frame mounted on the chain, two rollers connected with such frame, one on each side of the channel, so as to prevent the tray from forcing the chain out of alinement, and a roller projecting from the tray into the channel to keep the tray from swinging.

6. In a package-elevator, the combination of two channel-bars with a chain which travels in the channel formed between them, a tray-frame mounted on the chain, and rollers, one on one side of the channel and the other on the other side, adapted to bear against the channel-bars to prevent the tray from forcing the chain out of alinement.

7. In a package-elevator, the combination of a continuously-traveling chain, whose two portions travel in a given plane, with a series of trays attached to said chain and supported thereby and projecting laterally from such plane.

8. In a package-elevator, the combination of a continuously-traveling chain, whose two portions travel in a given plane, with a series of trays attached to said chain and supported thereby and projecting laterally from such plane and provided each with devices which prevent it from forcing its portion of the chain out of alinement.

9. In a package-elevator, the combination of a continuously-traveling chain, whose two portions travel in a given plane, a chain-channel in which the chain travels, with a series of trays attached to said chain and projecting laterally from such plane and provided each with devices which prevent it from forcing its portion of the chain out of alinement, said devices consisting of rollers associated with the tray and on opposite sides of the chain-channel.

10. In a package-elevator, the combination of two sets of bars and a single chain whose sections travel between them, with a series of trays projecting laterally from the plane in which the sections of the chain travel and attached to the chain, and rollers attached to the trays and on opposite sides of the bars.

11. In a package-elevator, the combination

of two sets of bars and a chain which travels between them, with a series of trays projecting laterally from the plane in which the sections of the chain travel and attached to the chain, rollers attached to the trays and on opposite sides of the bars, and a roller between the bars also attached to the tray.

12. In a package-elevator, the combination of two bars, a chain which travels between them, a bolt on the chain, a roller on one end of the bolt to bear against the bars, and a tray on the other end of the bolt to bear against the other side of the bars.

13. In a package-elevator, the combination of two bars, a chain which travels between them, a bolt on the chain, a roller on one end of the bolt to bear against the bars, a tray on the other end of the bolt to bear against the other side of the bars, and a roller associated with the tray to serve as such latter bearing.

14. In a package-elevator, the combination of two bars, a chain which travels between them, a bolt on the chain, a roller on one end of the bolt to bear against the bars, a tray on the other end of the bolt to bear against the other side of the bars, a roller associated with the tray to serve as such latter bearing, and a roller associated with the tray and traveling between the bars.

15. In a package-elevator, a head-wheel, a chain which carries the trays suspended thereon, two pairs of bars between which the chain travels, the upper ends of the inner bars shaped, the one on the ascending side to form substantially the same arc as the head-wheel and the one on the descending side to form a flatter arc.

16. In a package-elevator, a foot-wheel, a chain which carries the trays suspended thereon, two pairs of bars between which the chain travels, the lower ends of the inner bars connected.

17. In a package-elevator, a foot-wheel, a chain which carries the trays suspended thereon, two pairs of bars between which the chain travels, the lower ends of the inner bars connected, and detached inner bar portions beyond the connected portions.

18. In a package-elevator, a foot-wheel, a chain which carries the trays suspended thereon, two pairs of bars between which the chain travels, the lower ends of the inner bars connected, and detached inner bar portions beyond the connected portions, shaped the one on the descending side to form an arc substantially the same as that of the foot-wheel and the one on the ascending side shaped to form an arc flatter than that of the foot-wheel.

19. In a package-elevator, the combination of a continuously-traveling chain, whose two portions travel in a given plane, with a series of trays attached to said chain and supported thereby and projecting laterally from such plane, said trays attached so as to swing in such a way as always to have the same side up.

20. In a package-elevator, the combination of a traveling chain, whose two portions travel in a given plane, with a series of trays attached to said chain and supported thereby
5 and projecting laterally from such plane.

21. In a package-elevator, the combination of a traveling chain, with trays supported thereby and projecting therefrom to one side

of the plane in which the two branches of the chain are traveling, and means whereby the trays are supported so as to be prevented from forcing the chain out of alinement.

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