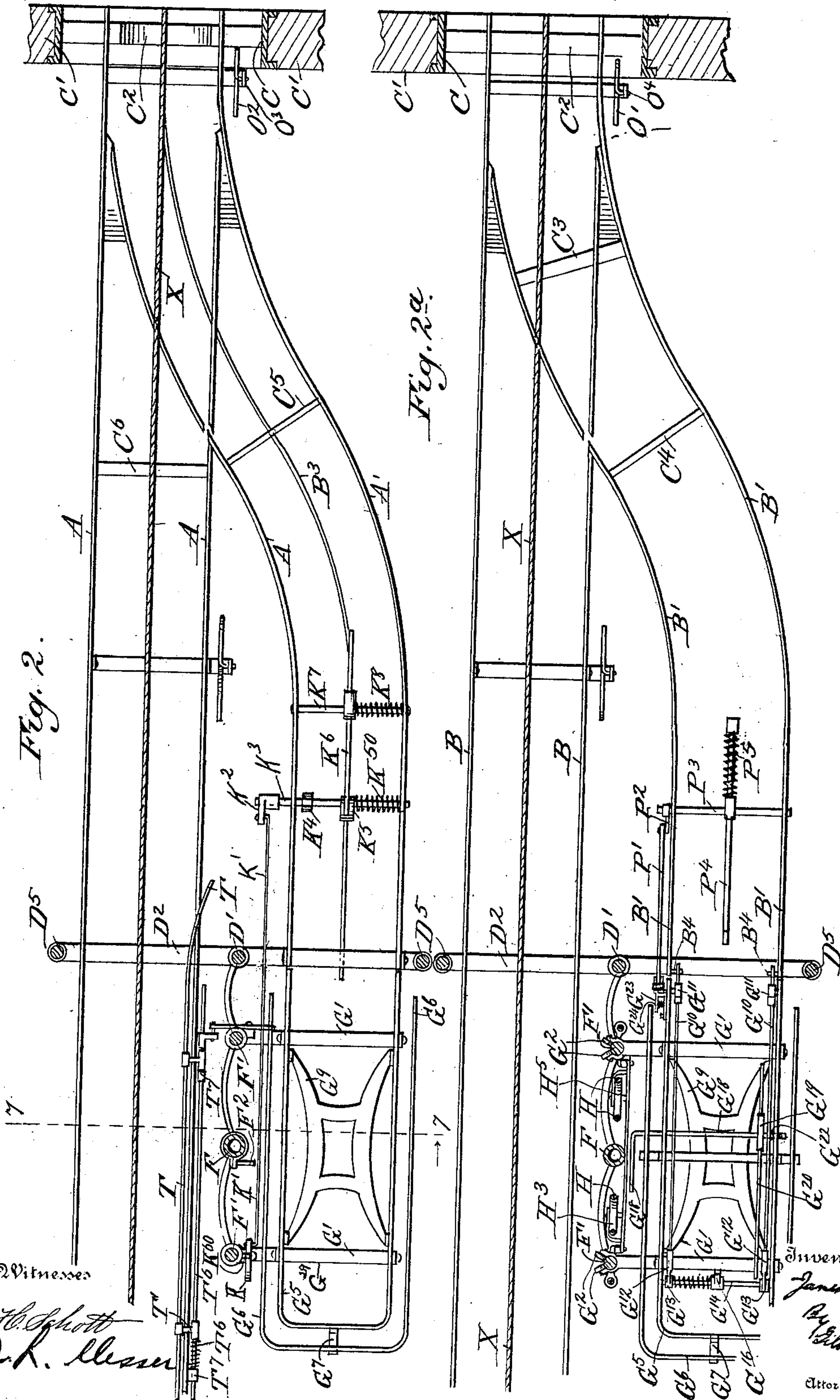


J. T. COWLEY.
CONVEYING APPARATUS.

(Application filed Apr. 25, 1895.)

7 Sheets—Sheet 2.

(No Model.)



Witnesses
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No. 640,101.

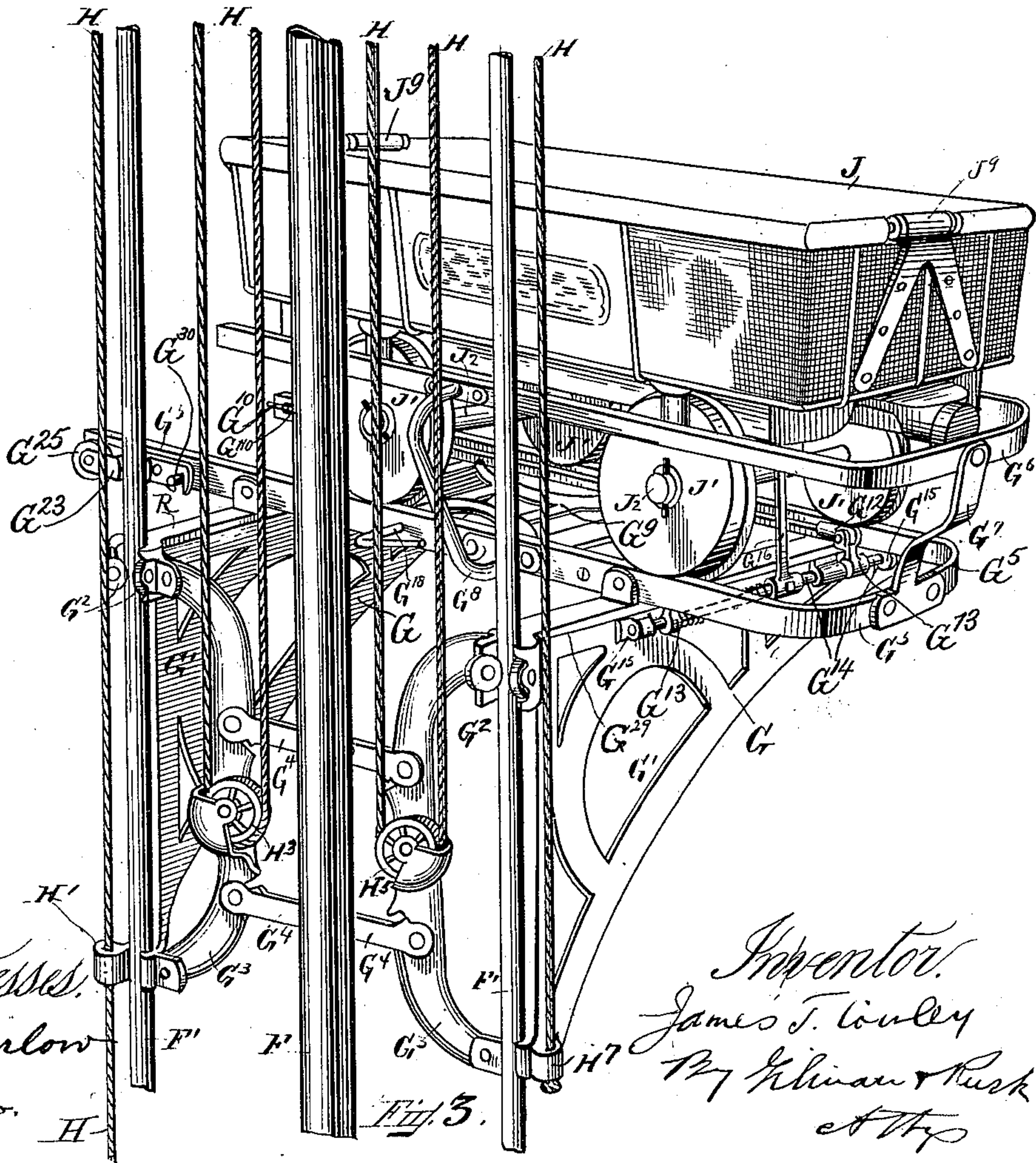
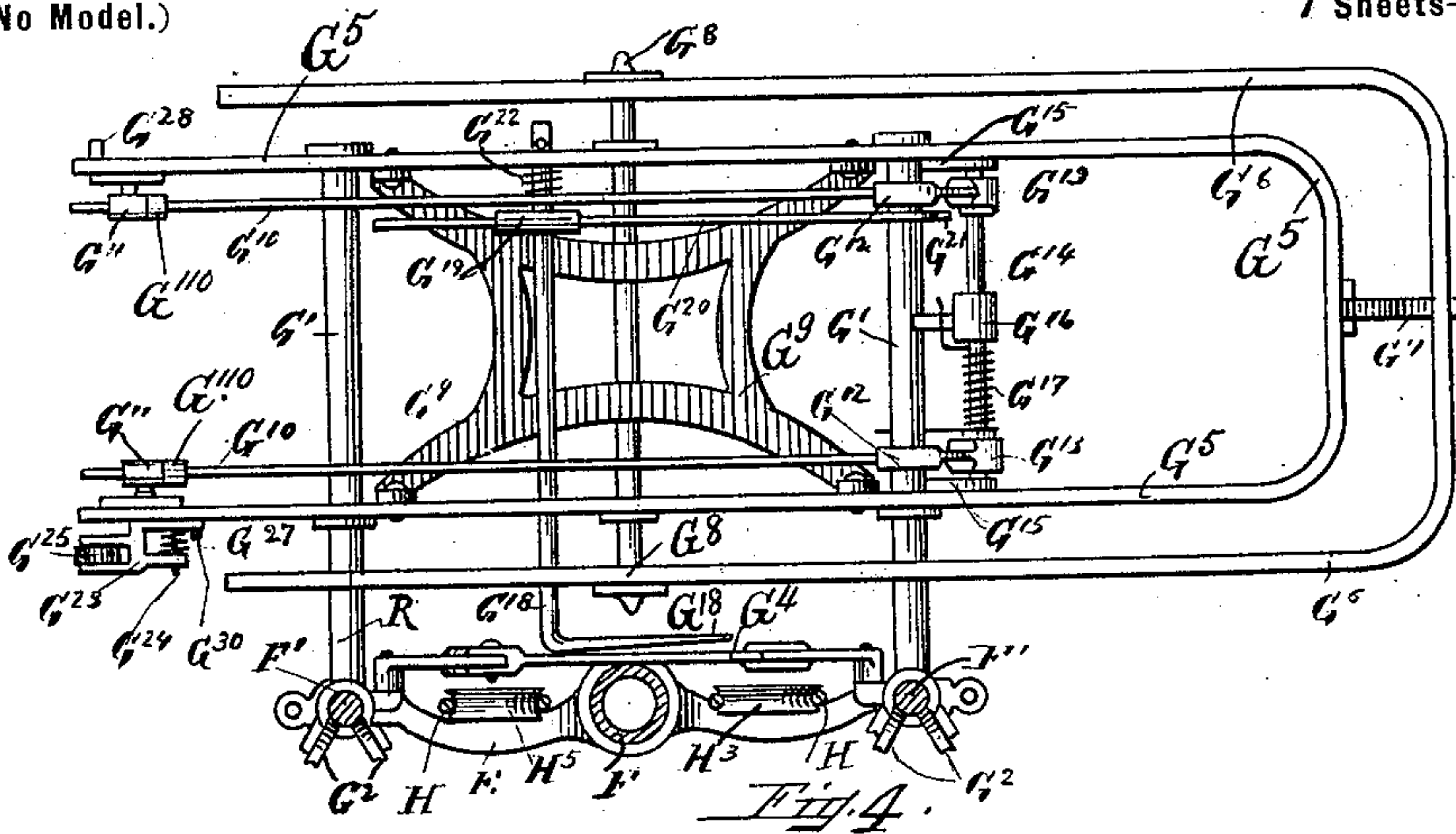
Patented Dec. 26, 1899.

J. T. COWLEY.
CONVEYING APPARATUS.

(Application filed Apr. 25, 1895.)

(No Model.)

7 Sheets—Sheet 3.



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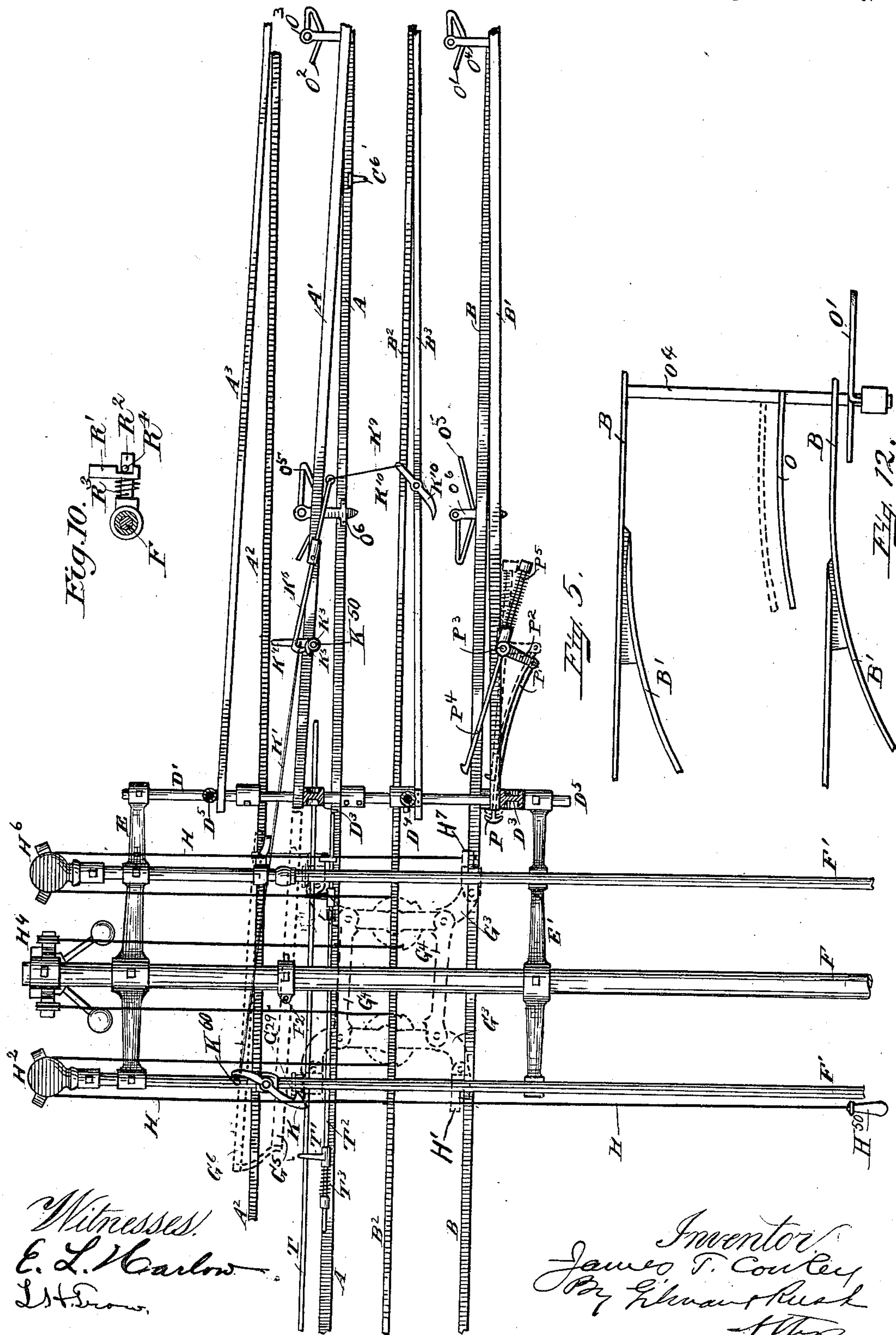
Patented Dec. 26, 1899.

J. T. COWLEY.
CONVEYING APPARATUS.

(Application filed Apr. 25, 1895.)

(No Model.)

7 Sheets—Sheet 4.



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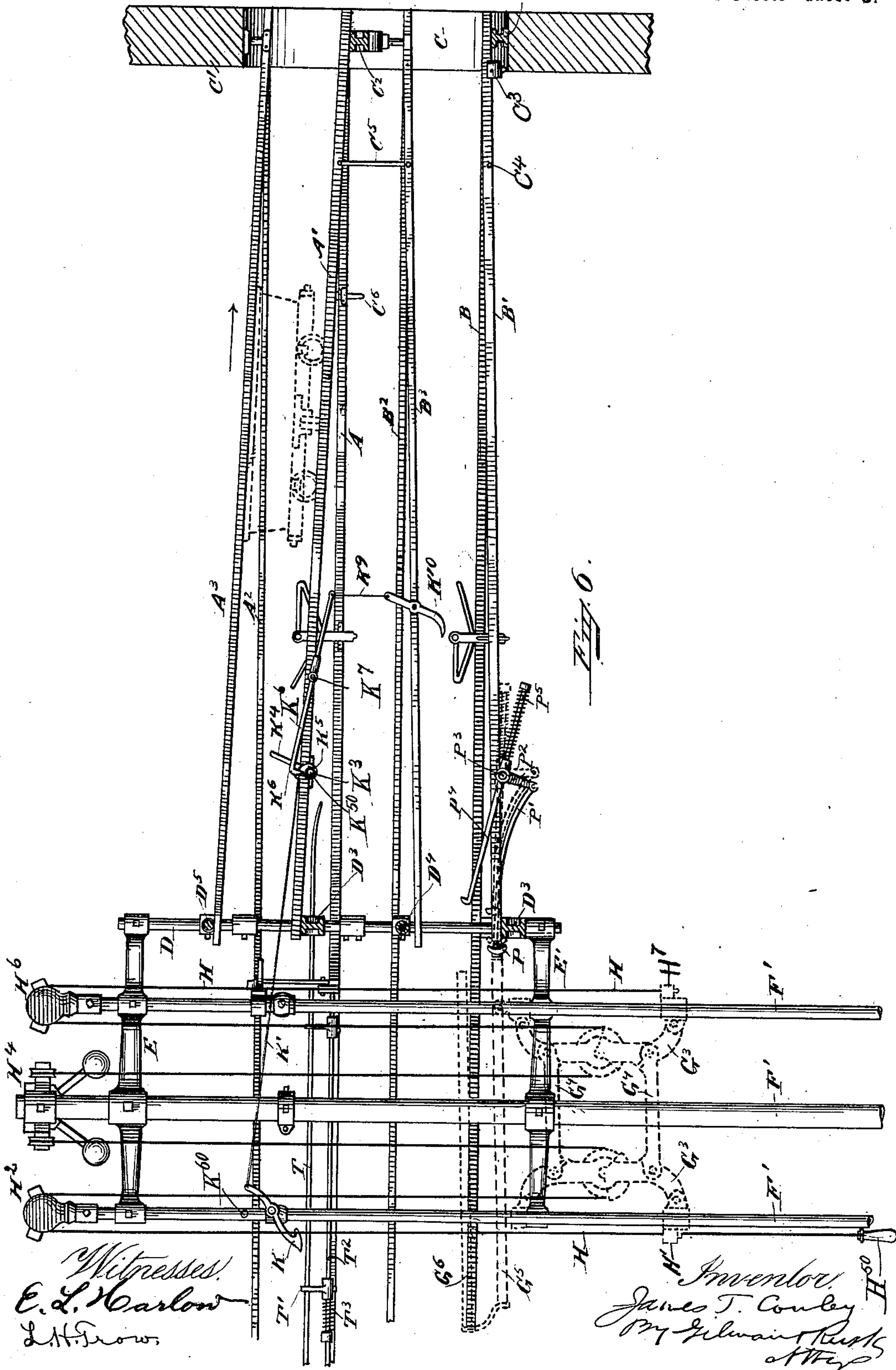
Patented Dec. 26, 1899.

J. T. COWLEY.
CONVEYING APPARATUS.

(No Model.)

(Application filed Apr. 25, 1895.)

7 Sheets—Sheet 5.



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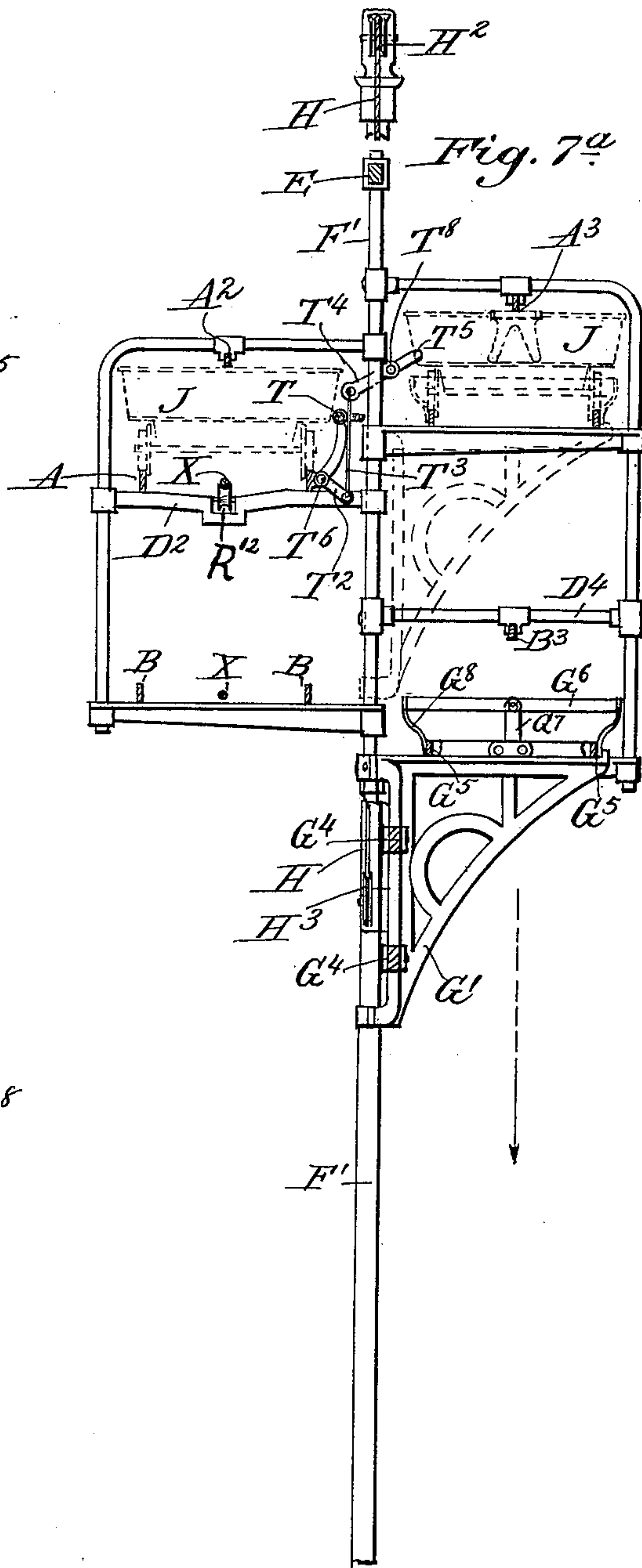
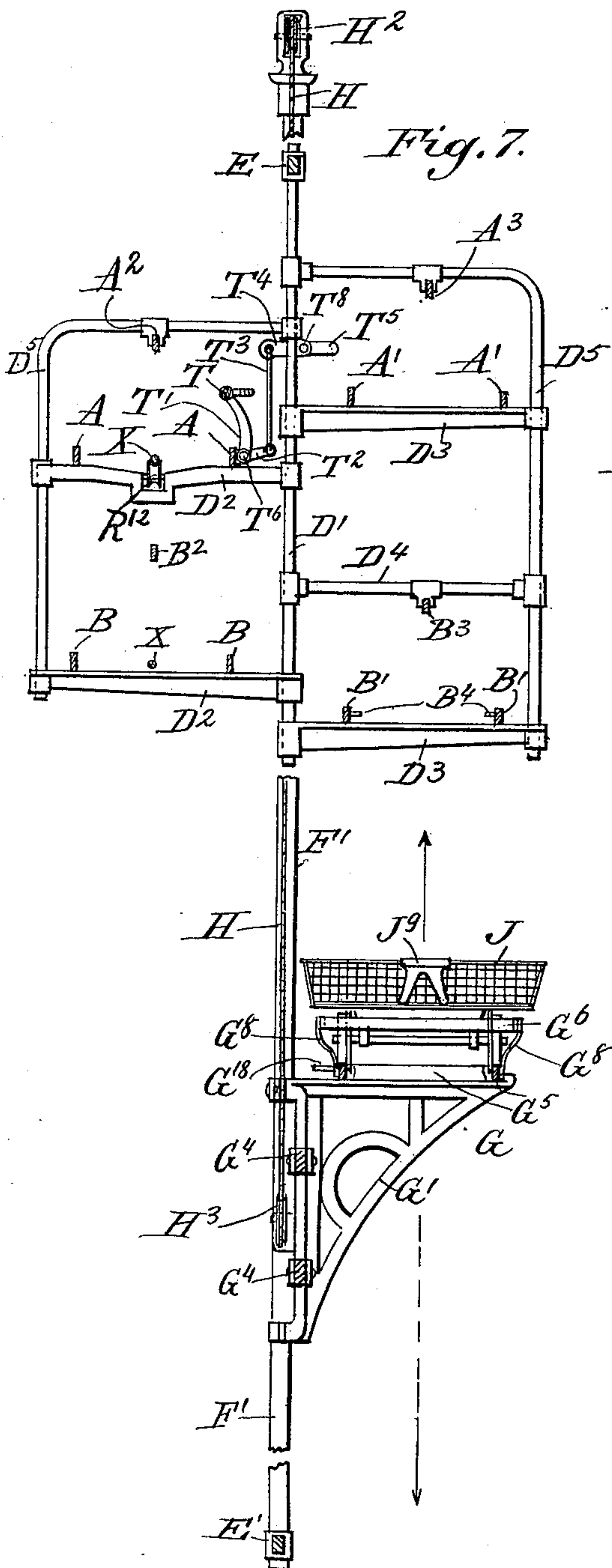
Patented Dec. 26, 1899.

J. T. COWLEY.
CONVEYING APPARATUS.

(Application filed Apr. 25, 1895.)

(No Model.)

7 Sheets—Sheet 6.



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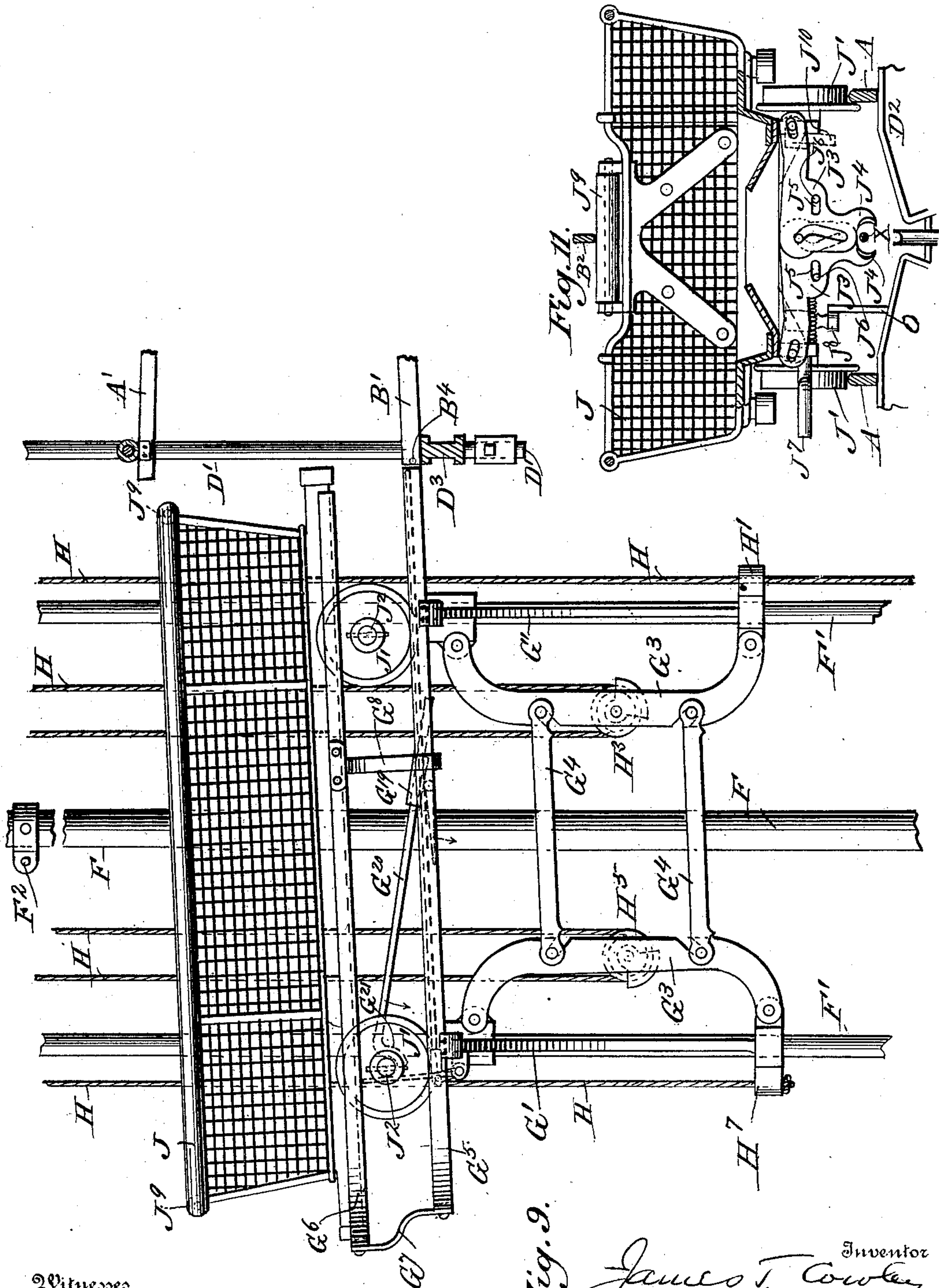
Patented Dec. 26, 1899.

J. T. COWLEY.
CONVEYING APPARATUS.

(Application filed Apr. 25, 1895.)

(No Model.)

7 Sheets—Sheet 7.



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Fig. 9.

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CONVEYING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 640,101, dated December 26, 1899.

Application filed April 25, 1895. Serial No. 547,065. (No model.)

To all whom it may concern:

Be it known that I, JAMES T. COWLEY, of Lowell, county of Middlesex, and State of Massachusetts, have invented new and useful
5 Improvements in Conveying Apparatus; and I hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

10 My invention relates to new and useful improvements in conveying apparatus in which the tracks on which the carriers are adapted to travel are located above the salesman and suitable elevating devices are provided at the
15 salesman's station to raise and lower the carriers to and from the tracks.

My invention consists of certain novel features, arrangements, and combinations hereinafter described, and particularly pointed
20 out in the claims.

In the drawings which illustrate a construction embodying my invention, Figure 1 represents a perspective side elevation of the tracks and elevator, taken at one of the stations along the line. Fig. 2 is a horizontal
25 sectional view showing a plan of the upper main and branch tracks. Fig. 2^a is a similar view showing the lower main and branch tracks. Fig. 3 is a perspective detail view of the carrier and elevator. Fig. 4 is a plan view of the elevator-carriage. Fig. 5 is a side elevation of one of the stations along the line, showing the elevator-carriage dotted in alignment with the upper branch tracks in position
30 to forward the carrier along the branch tracks onto the main forwarding-tracks leading to the receiving-station. Fig. 6 is a view similar to Fig. 5, but showing the elevator-carriage dotted in alignment with the lower
35 branch tracks and in position to receive the carrier returning from the receiving-station to the station to which it belongs. Fig. 7 is a transverse sectional view on the line 7 7 of Fig. 2, showing the track-supporting frame
40 and the elevator, the latter being in a lowered position. Fig. 7^a is a similar view showing the elevator in full and dotted lines in several different positions. Fig. 8 is a partial sectional view of the tracks and carrier-retain-
45 ing device, taken on the line 2 2, Fig. 1. Fig. 9 is an enlarged detail view, partly in section,

showing the elevator and the carriage mounted thereon. Fig. 10 is a plan view showing the under side of the carrier. Fig. 11 is a transverse vertical section of the carrier. 55 Fig. 12 is a portion of the lower tracks, showing the lower branch tracks and carrier-switching device.

Like letters of reference refer to like parts throughout the several views. 60

In the conveying apparatus hereinafter described, A represents the main forwarding-tracks passing by the various branch stations and leading to the receiving end of the main line, and at each station suitable upper branch 65 tracks A' lead to the said main forwarding-tracks from the respective stations, and a suitable upper guide-rail A² is provided, against which the upper end of the carrier contacts to steady it in its movements along the main 70 forwarding-tracks.

A³ represents a suitable guide-rail for the same purpose located above the branch tracks A' as the carrier travels onto said branch tracks. 75

B represents main return-tracks leading from the respective stations past the various stations, and B' represents branch tracks leading from the main return-tracks to the various stations, and B² represents an upper guide- 80 rail for the lower main tracks which is adapted to steady the carrier as it travels along said main return-tracks, and B³ represents a suitable guide-rail for the same purpose located above the branch tracks B' as the carrier travels onto said branch tracks. 85

At suitable distances apart are located brackets C in the walls C', by means of which brackets C the tracks are supported and held rigid in their various positions. 90

C² represents cross-brackets fastened to the brackets C, upon which the tracks A and B and guide-rail B² are supported. (See Figs. 1 and 6.)

C³ and C⁴ represent suitable braces connected to and supporting the main return-tracks and branch tracks therefrom, Fig. 1. 95

C⁵ represents a brace connecting the branch tracks A' and the guide-rail B³.

C⁶ is a brace connecting the two main tracks A together. 100

D represents a bracket placed at each sta-

tion and connecting the main forwarding and return tracks and the forwarding and return branch tracks together, Figs. 1, 5, 6, 7, and 7^a, and also the guide-rails A² and B² and A³ and B³. This bracket consists of a central rod D', upon which is mounted the arm D², which supports the lower main tracks B, and the arm D³, which supports the lower branch tracks B', and also there is supported on said rod upper arms D² and D³, which support the main tracks A and the branch tracks A', and through the outer ends of these arms D² and D³ pass the rods D⁵, which are bent at right angles at the top and fastened to the rod D' by suitable hubs. The cross-bar D⁴, connected to the rods D' and D⁵, supports one end of the guide-rail B³. On each end of the rod D' are fastened suitable brackets E and E', which extend outwardly and are connected to the standard F and elevator guide-rods F', which pass through suitable hubs in said brackets E and E' and are firmly secured thereto.

Referring now to Fig. 3, G represents an elevator-carriage by which the carriers are lowered from the branch return-tracks within reach of the operator and also raised to the upper forwarding branch tracks to be sent to the receiving-station. This carriage is formed by two brackets G', which slide upon the rods F' and are guided by the rollers G² on said brackets. These brackets are connected together by the jointed braces G³ and G⁴, and the said braces G⁴ are pivotally connected to the braces G³, so as to allow either one of the brackets G' to be slightly raised or lowered to incline in either direction the tracks G⁵, which are pivoted to the said brackets at G³¹, and upon which the carrier rests. The object is to incline the track G⁵ in one direction to receive the carrier from the branch track B' and also to incline it in the opposite direction when the carrier is to be forwarded upon the branch tracks A' to the main forwarding-track.

G⁶ is a guide-rail placed above the track G⁵ and supported by the brackets G⁷ and G⁸, Figs. 3 and 4. This guide-rail G⁶ is designed to receive the carrier and hold it in position upon the track G⁵.

G⁹ is a center cross-brace secured to the tracks G⁵.

G¹⁰ represents two rods sliding at one end in the supports G¹¹, secured to the tracks G⁵, and at the other end connected to links G¹², which in turn are connected to the arms G¹³, mounted upon the shaft G¹⁴, supported in the bearings G¹⁵, attached to the bracket G'.

G¹⁶ is an upwardly-extending finger adapted to be engaged by the forward axle of the carrier when it passes onto the elevator-carriage.

G¹⁷ represents a spring one end of which engages with the finger G¹⁶, and the opposite end, extending outwardly, is fastened to the bracket G'. The object of this spring is to keep the finger G¹⁶ and rods G¹⁰ in position shown in Fig. 4 when the carrier J is not in po-

sition on the track G⁵. Stops G¹¹⁰ on the rods G¹⁰ by contacting with the supports G¹¹ limit the forward movement of the said rods. These rods G¹⁰, projecting outwardly through the supports G¹¹, engage suitable pins B⁴ on the branch tracks B' (see Fig. 1) when the carrier is not on the elevator-carriage; but when the carrier passes onto the elevator-carriage from the branch tracks B' the forward axle of the carrier engages the finger G¹⁶ and pushes it backward, which carries with it the rods G¹⁰ and pulls the rods G¹⁰, connected to the shaft G¹⁴, off from the supporting-pins B⁴ in the branch tracks B', and thus allows the elevator-carriage and the carrier to lower down on the standards F' within reach of the operator. Mounted in the tracks G⁵ on the elevator-carriage is a rod G¹⁸, bent at right angles and having fixed thereon at right angles thereto a sleeve G¹⁹, through which passes the rod G²⁰. This rod G²⁰ is bent downwardly at G²¹ to form the end over which the forward axle J² of the carrier passes when the rod G²⁰ is raised by the action of the spring G²², Figs. 4 and 9, and the carrier is thus retained on the elevator-carriage.

G²³ is a pivoted frame mounted upon the pin G²⁴ and provided with a spring G²⁷ and stop-pin G³⁰. In the end of the frame G²³ is mounted a friction-roller G²⁵ for the purpose to be hereinafter explained.

The operating-cord H passes through the apertured lug H', projecting from the lower part of one of the brackets G' of the elevator-carriage, over the pulley H², under the pulley H³, over the pulleys H⁴, under the pulley H⁵, over the pulley H⁶, and is secured to the lug H' on the other bracket G' of the elevator-carriage. Below the lug H' the cord is provided with a handle H⁵⁰. By means of this cord the elevator-carriage can be raised and lowered.

J represents the carrier, provided with wheels J', mounted upon the front and rear axles J². The carrier on its under side is provided with a suitable gripping device consisting of suitable jaws J³ and provided with downwardly-extending fingers J⁴, adapted to receive and grip the cable X, carried by the pulleys R¹², journaled in the arms D³. The jaws J³ are provided with slots J⁵, in which work the pins J⁶, mounted upon the grip-operating lever J⁷. The carrier is provided with the switching-lug J⁸, mounted upon one of the axles J² of the carrier, and said lug is adapted to engage with the switch-guide O, (shown in Figs. 11 and 12,) and these guides are arranged in different lateral positions at the different stations and the lugs on the several carriers at correspondingly different positions on said carriers by which the carrier belonging to a certain station can be switched to the station to which it belongs.

J⁹ represents suitable rollers on the top of the carrier, which engage with the upper guide-rails A² B² A³ B³.

K is a catch mounted on one of the eleva-

tor guide-rods F' and adapted to engage with the flange G²⁹, Fig. 1, on the elevator-carriage G when raised to its highest position and retain it in that position, Fig. 5, until released by the movement of the carrier passing onto the branch tracks A'. From the upper end of the catch K extends a rod K', which is fastened to a lug K², mounted on a shaft K³, Fig. 1, which is journaled in the tracks A'. Mounted on this shaft and projecting upwardly between the rails of the track A' is a finger K⁴ in position to be struck by the lug J¹⁰ on the axle J² of the carrier J. On the shaft K³ is a spring K⁵⁰, that acts on said shaft and through the rod K' normally holds the catch K in a position to engage with the elevator-carriage. The action of the spring is limited by the catch K engaging with the pin K⁶⁰, projecting from the guide-rod F', on which the catch is pivoted. Mounted also upon this shaft K³ is a cam-shaped catch K⁵. Upon the shaft K⁷, extending between the two branch tracks A', is mounted a hub, through which extends the catch K⁶. This catch is held downwardly by the action of the spring K⁸ in position to engage with the catch K⁵ on the shaft K³. Extending downwardly from the catch K⁶ is a rod K⁹, attached to the lever K¹⁰, mounted upon the top guide-rail B³. When the elevator-carriage, with the carrier, is raised to the position shown in dotted lines in Fig. 5, the catch K engages with the flange G²⁹ on the elevator-carriage and retains it in a raised position. The bent portion of the rod G¹⁸, Fig. 4, engages with the pin F² on the rod F, Fig. 5, and rotates the rod G¹⁸, which carries with it the catch G²⁰ and lowers down the end G²¹ out of contact with the axle of the carrier, which allows the carrier to pass by gravity onto the upper branch tracks A'. As the carrier passes onto the upper branch tracks A' the lug J¹⁰ on the axle of the carrier engages with the finger K⁴ on the shaft K³ and pushes it forward and through the connecting-rod K' and catch K releases the elevator-carriage and allows it to lower to alinement with the lower tracks, as shown in dotted lines, Fig. 6, and in this position the ends of the rods G¹⁰, Fig. 4, rest upon the pins B⁴ in the lower branch tracks B', Fig. 1. As the carrier pushes the finger K⁴ forward the catch K⁶ on the shaft K⁷ engages with the catch K⁵ on the shaft K³ and holds it in position (shown in Fig. 6) against the action of spring K⁵⁰, and thereby holds the catch K clear of the elevator-carriage. The carrier will then continue by gravity down the branch tracks A' onto the main tracks A, when the grip-operating lever J⁷ by passing under the cam-shaped guide O², supported by the bracket O³, will be operated to lower and open the jaws J⁴ to receive the cable X, and the carrier will be conveyed along the line by the cable X toward the receiving-station.

Now, supposing the carrier has been sent to the receiving-station on the main forwarding-

track and has been returned along the main return-track B and has been switched at the station shown in Figs. 1, 5, and 6 and on passing onto the branch tracks B' the grip-operating lever J⁷ will pass under the disengaging-cam O', supported by the bracket O⁴, to disengage the cable X from the carrier-jaws J⁴, and the carrier will continue by momentum onto the branch tracks B' and along the same toward the station to which it belongs, in its passage along the branch tracks B' the carrier engages with the lever K¹⁰ and through the connecting-rod K⁹ releases the catch K⁶ from the catch K⁵, and thereby the spring K⁵⁰ is allowed to act to throw the catch K into a position to engage with the elevator-carriage. If the elevator-carriage is not in position to receive the carrier from the branch tracks B', Figs. 1 and 5, the forward axle J² of the carrier will engage with the catch P⁴, mounted on the shaft P³, journaled in the branch tracks B', and the carrier will thus be retained upon the branch tracks B'; but when the elevator-carriage is in alinement to receive the carrier from the branch tracks B' the friction-roll G²⁵, mounted in the frame G²³ of the elevator-carriage, will engage with the cam P, mounted on the end of the rod P', and push the rod P' backward to the position shown in dotted lines, Fig. 6. This rod carries with it the lever P², which is mounted on the end of the shaft P³, upon which the catch P⁴ is fastened, and by this backward movement of the rod P' the catch P⁴ is lowered to the dotted position shown in Figs. 5 and 6. The carrier is then free to pass onto the elevator-carriage, and by the movement before described as to the finger G¹⁶, shaft G¹⁴, and rod G¹⁰ the elevator-carriage is released and allowed to descend within reach of the operator.

As all the carriers are disengaged from the propelling-cable X at the trip O', Fig. 5, and only certain carriers are to pass into the said station, it is necessary to again engage the carriers passing to stations beyond with the propelling-cable X after they have passed the junction of the tracks B and branch tracks B'. This reengagement of the carrier and propelling-cable X is made by the grip-operating lever J⁷ on the carrier J passing under the cam-engaging trip O⁵, mounted on the bracket O⁶, which lowers down the grip-engaging lever J⁷ and opens the jaws J⁴ on the carrier in position to receive the propelling-cable.

To prevent the collision of a carrier passing along the main tracks A with a carrier passing along the branch tracks A' onto the main tracks A, at each station is provided a rod T, supported by brackets T', fastened to a rod T⁶. This rod T⁶ is journaled in the lugs T⁷, fastened to the side of one of the tracks A. The ends of this rod T are curved outwardly, so that the carrier passing along the tracks A will engage with the rod and move it outwardly against the tension of the spring T³ to the position shown by dotted

lines, Fig. 8. After the carrier has passed the said rod T the spring T³ will again carry the rod T back to its original position. On one end of the rod T⁶ is mounted an arm T², Figs. 1, 7, 7^a, and 8, to the end of which is fastened the connecting-rod T³. The upper end of this rod T³ is fastened to an arm T⁴, journaled at T⁸ in a lug upon the rod F'. The end T⁵ of this rod T⁴ projects outwardly in position to engage with the carrier J and hold it upon the elevator-carriage G when another carrier is passing along the tracks A and is in engagement with the rod T. After this carrier has passed along the tracks A out of engagement with the rod T and the spring T³ has carried the rod T back to its original position (shown in full lines, Fig. 8) through the connection of the rod T³ and arm T⁴ the end T⁵ will be lowered out of contact with the carrier, and the carrier will be allowed to pass onto the forwarding branch tracks A', and hence to the main tracks A. By this mechanism the carrier is retained upon the elevator-carriage until the carrier passing along the main line has passed beyond the station a sufficient distance to prevent a collision with the carrier passing along the branch tracks A' onto the main tracks.

Having thus ascertained the nature of my invention and set forth a construction embodying the same, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In a conveying apparatus, a forwarding and return track, a carrier adapted to travel on said tracks, an elevator adapted to move said carrier into and out of alinement with said tracks and consisting of two brackets connected together so that one of said brackets can be moved to a limited degree independently of the other, tracks mounted on said brackets, and means for tilting said elevator.

2. In a conveying apparatus, a forwarding

and a return track, a carrier adapted to travel on said tracks, an elevator adapted to move said carrier into and out of alinement with said tracks and consisting of two brackets, a link pivoted to and joining said brackets, tracks mounted on said brackets, and means for tilting said elevator.

3. In a conveying apparatus, a forwarding and a return track, carriers adapted to travel on said tracks, an elevator adapted to move the carriers into and out of alinement with said tracks, a catch for retaining the said elevator-carriage in alinement with the forwarding-tracks, means connected with said catch located in the path of the carriers on the forwarding-track and adapted to move and retain said catch out of its locking position, whereby the said elevator is released from its alinement with the forwarding-track, and means connected with said catch located in the path of the carriers on the return-track adapted to be actuated by the momentum of the same, whereby the catch is released and returns to its normal position to engage the elevator when the same is raised into alinement with the forwarding-track.

4. In a conveying apparatus, a forwarding and a return track, a carrier adapted to travel on said tracks, an elevator adapted to move said carrier into and out of alinement with said tracks and consisting of two brackets, a link pivoted to and joining said brackets, tracks pivotally secured to said brackets, and means for tilting said elevator.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 12th day of April, A. D. 1895.

JAMES T. COWLEY.

Witnesses:

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L. H. TROW.