

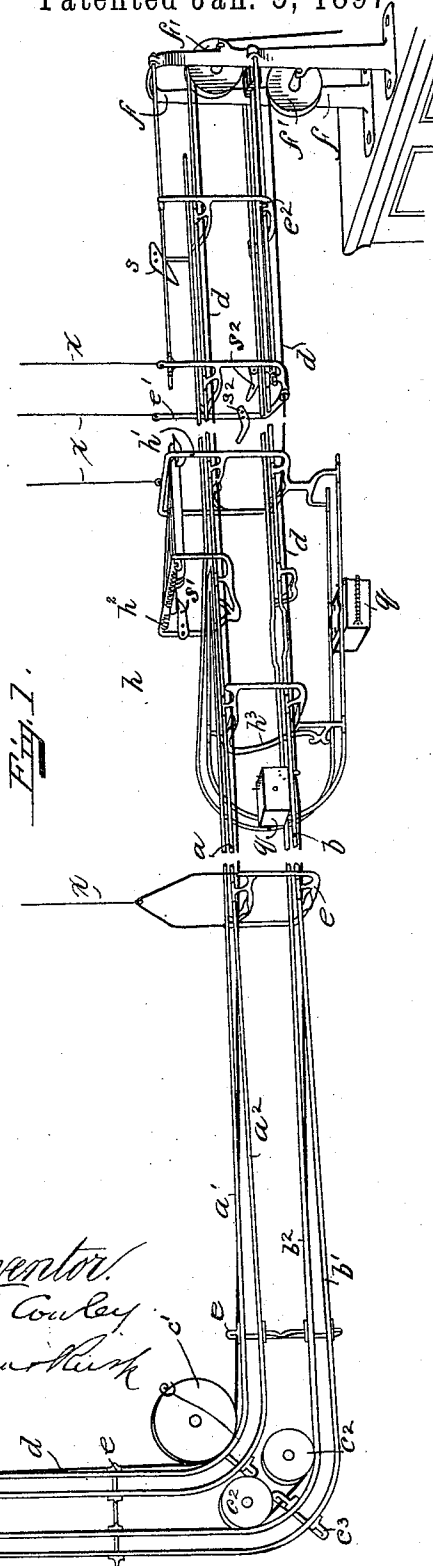
(No Model.)

8 Sheets—Sheet 1.

J. T. COWLEY.
CONVEYING APPARATUS.

No. 574,715.

Patented Jan. 5, 1897



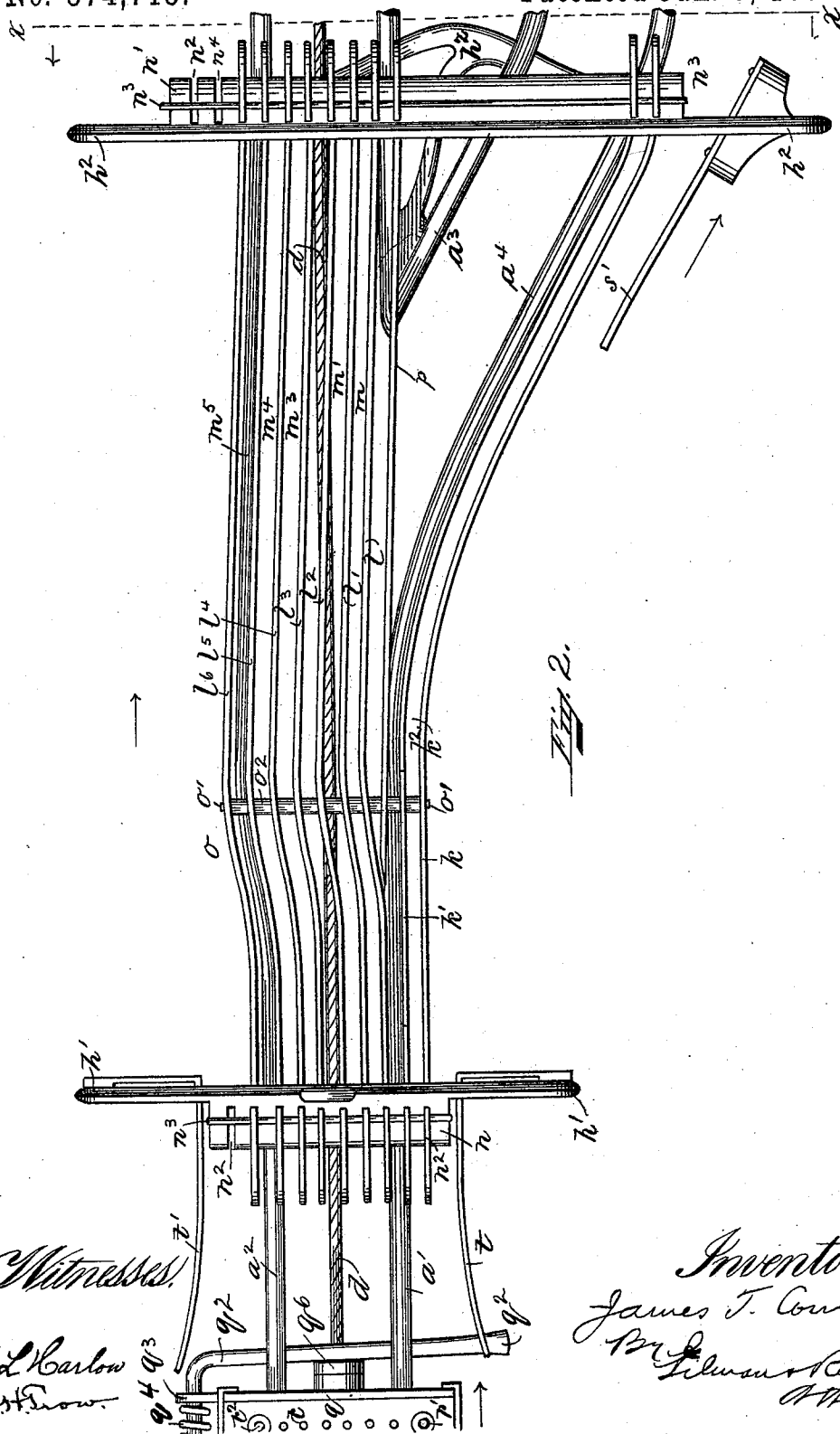
Witnesses:
E. L. Carlom
L. H. Snow

Inventor:
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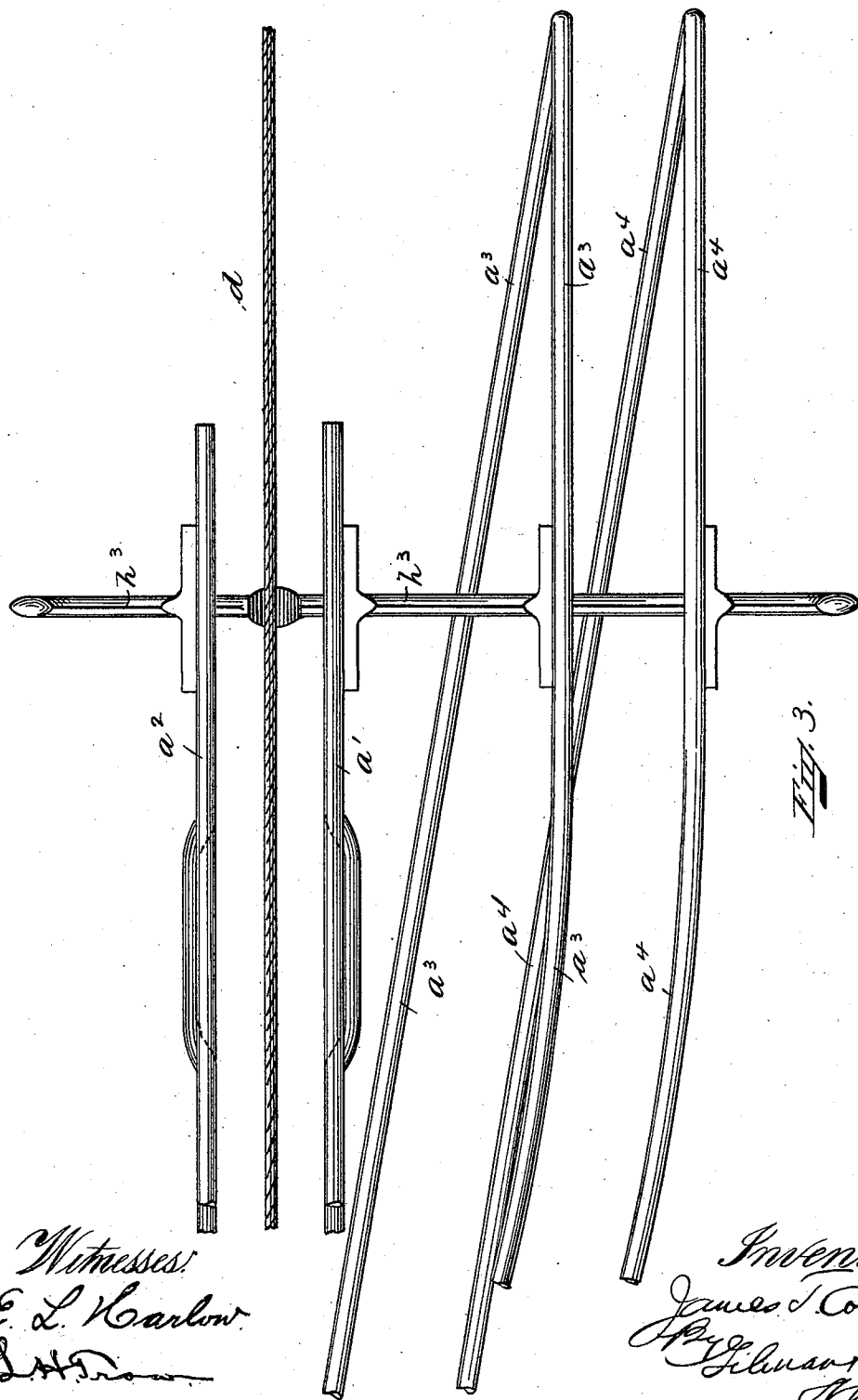
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J. T. COWLEY.
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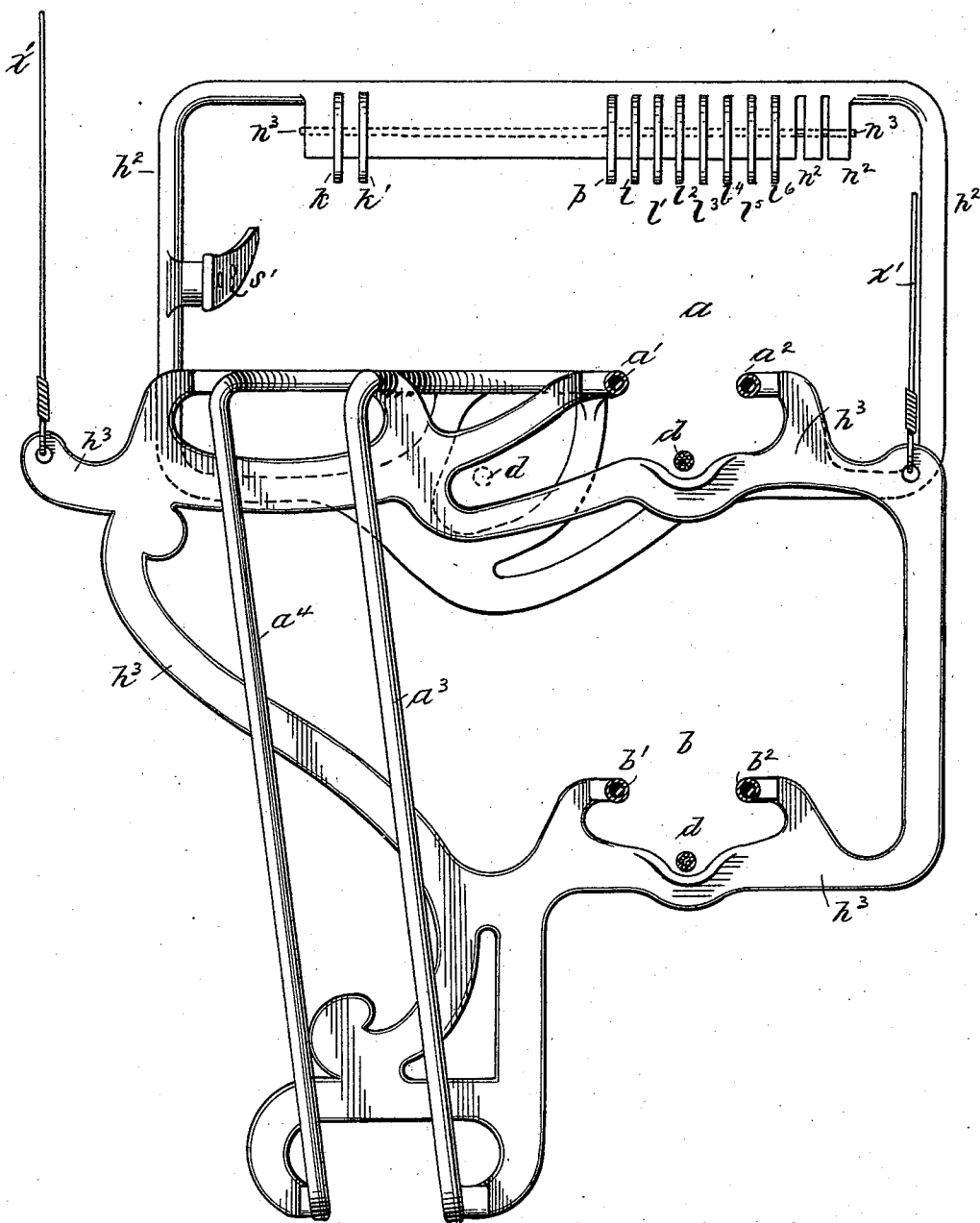
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CONVEYING APPARATUS.

No. 574,715

Patented Jan. 5, 1897.



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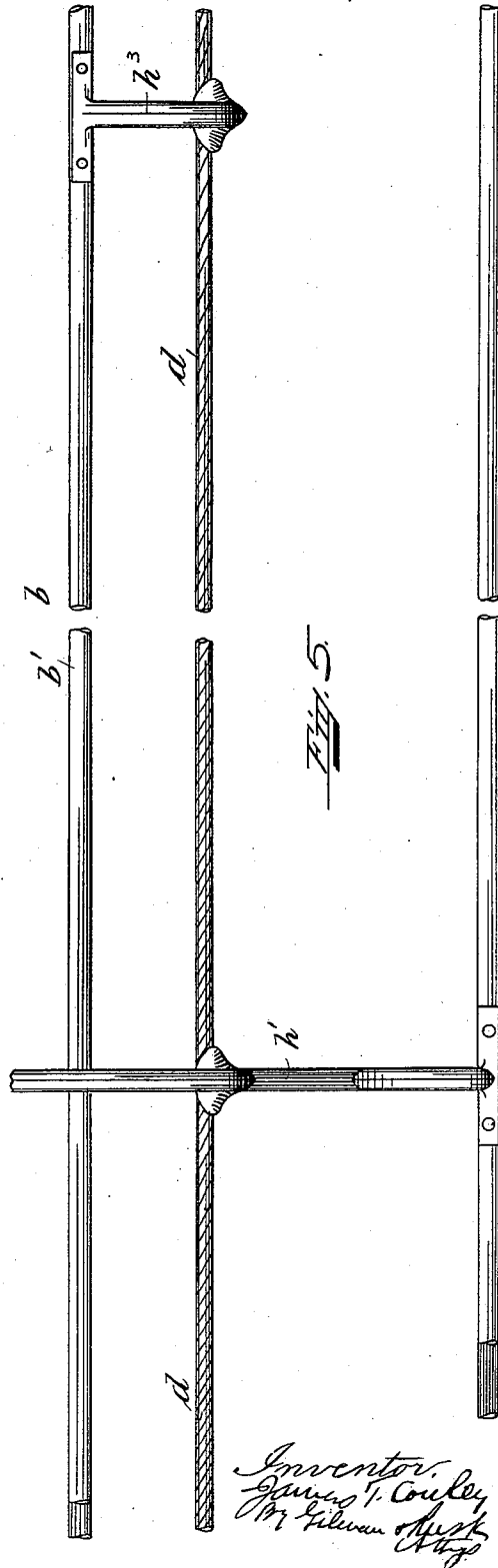
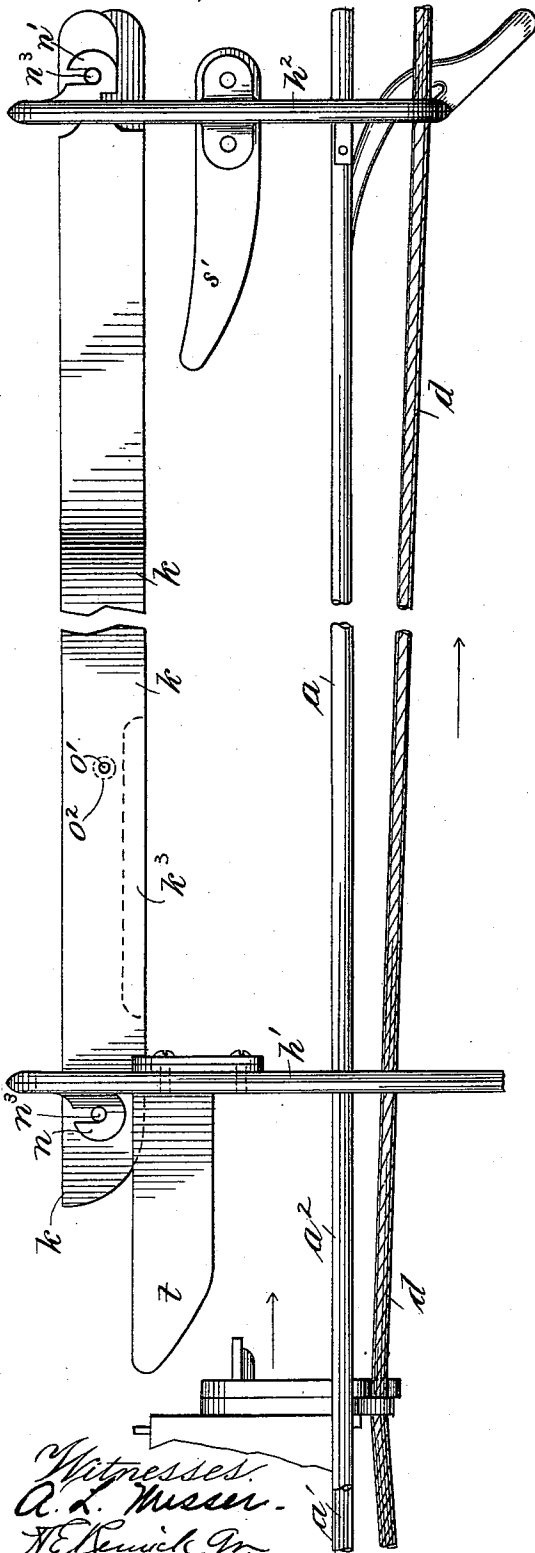
Fig. 4

Inventor:
James T. Cowley
By *Edmund Rusk*
Att'y.

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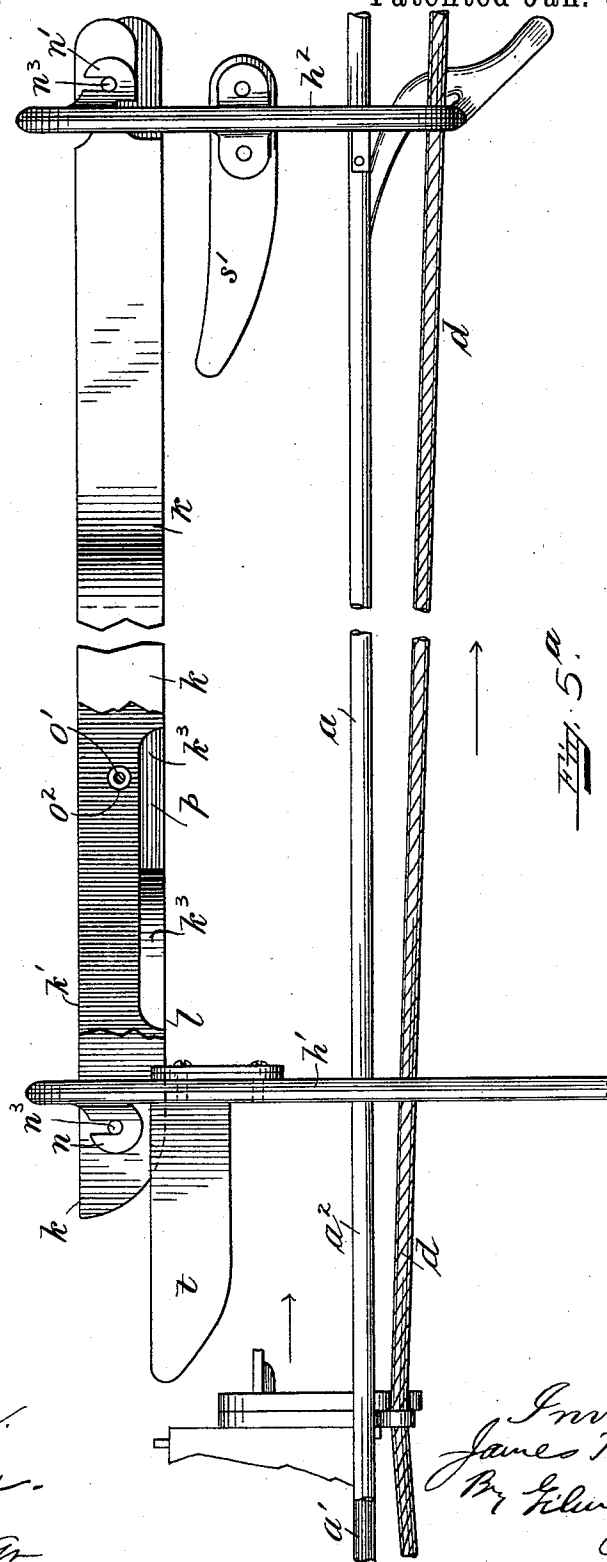
Patented Jan. 5, 1897.



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No. 574,715.

Patented Jan. 5, 1897.



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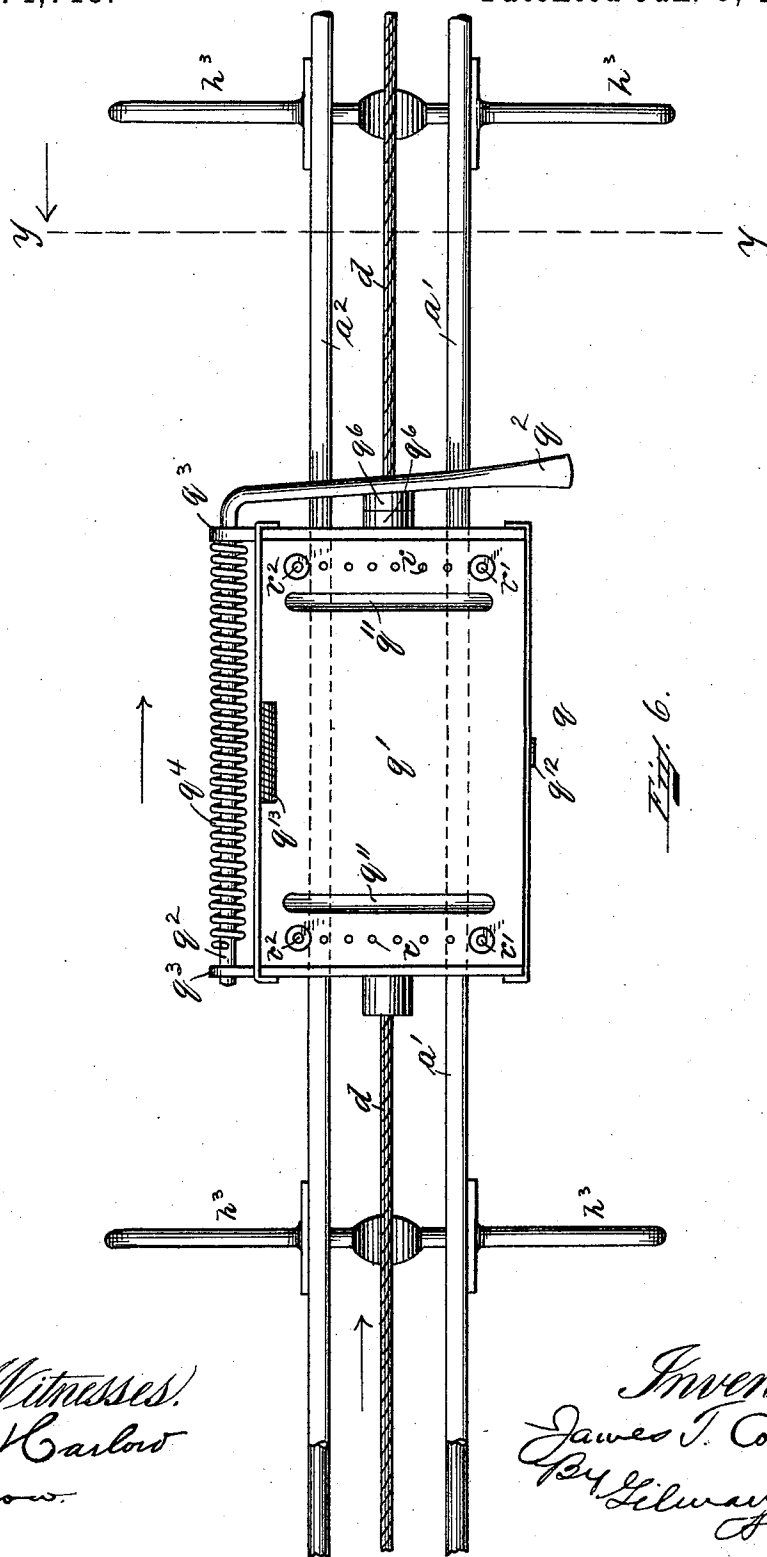
(No Model.)

8 Sheets—Sheet 7.

J. T. COWLEY.
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No. 574,715.

Patented Jan. 5, 1897.



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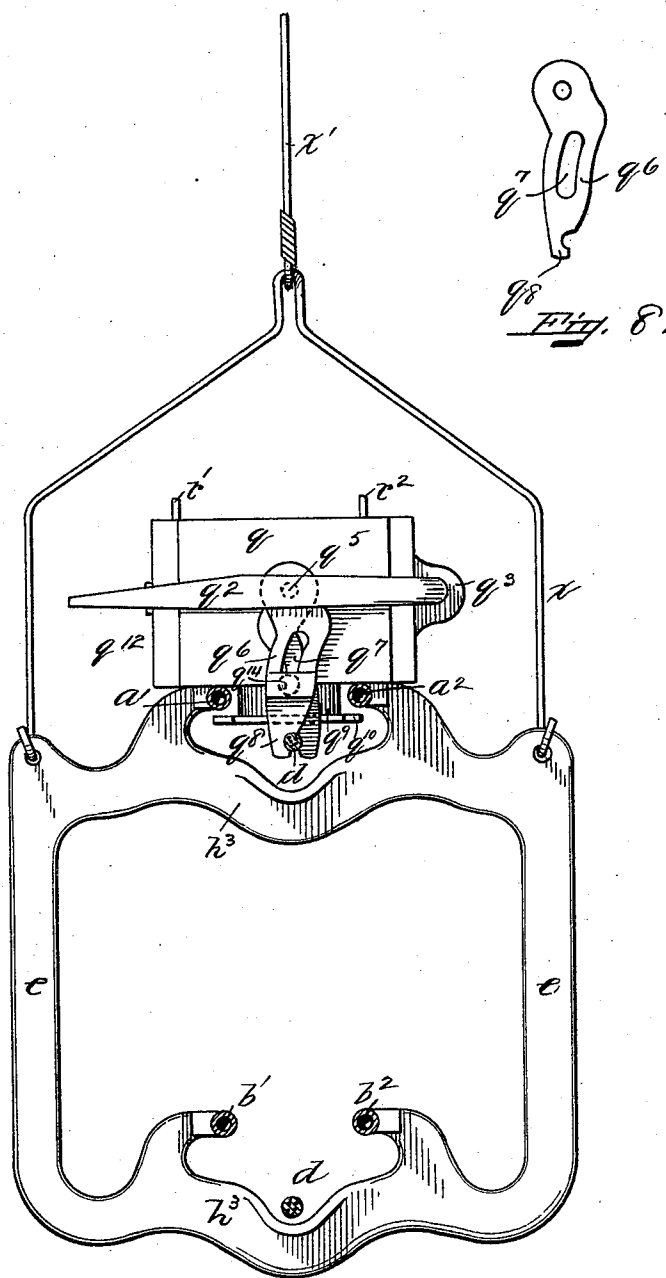
(No Model.)

8 Sheets—Sheet 8.

J. T. COWLEY.
CONVEYING APPARATUS.

No. 574,715.

Patented Jan. 5, 1897.



Witnesses:
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Fig. 7.

Inventor,
James T. Cowley
By Edmund R. Ross

UNITED STATES PATENT OFFICE.

JAMES T. COWLEY, OF LOWELL, MASSACHUSETTS, ASSIGNOR TO THE LAMSON
CONSOLIDATED STORE SERVICE COMPANY, OF NEWARK, NEW JERSEY.

CONVEYING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 574,715, dated January 5, 1897.

Application filed August 6, 1895. Serial No. 558,366. (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 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.

My invention has for its object to provide a conveying apparatus in which the switches where the carriers are diverted from the main track and the parts of the carrier which engage with the switches are constructed alike for all the stations, and there is also provided means on the carriers which engage with the guides at the stations, which guide the carrier away from the switches and prevent the carrier from being switched until it reaches the proper station, and the above means are so arranged as to permit the carrier to be switched at its own station to which it belongs, but prevents a carrier belonging to another station being switched at any station but its own. These and other objects are carried out by the apparatus hereinafter described.

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

In the accompanying drawings, which illustrate a construction embodying my invention, Figure 1 is a perspective side view showing one station of the line and the cashier's desk and a corner in the apparatus with the tracks changed from a horizontal to a vertical position. Fig. 2 is a plan view of a station, showing the arrangement of the switches, and also showing guides by which the carrier is guided away from the switches and permitted to pass to stations beyond. Fig. 3 is a plan view of the station, showing a continuation of Fig. 2, with the switch-tracks at one side curved downwardly to convey the carrier within reach of the operator. Fig. 4 is an end view of the station, taken on the line $x x$, Fig. 2, and looking in the direction indicated by the arrow. Fig. 5 is a side elevation of a part of the station. Fig. 5^a is a side elevation of the

upper part of the station shown in Fig. 5, with the outer guide broken away to show certain parts hereinafter described. Fig. 6 is a plan view of a section of the track, and also a carrier, which is moving in the direction indicated by the arrow. Fig. 7 is a sectional view through both tracks, taken on the line $y y$, Fig. 6, and looking in the direction indicated by the arrow. Fig. 8 is a detail view of one of the cable-gripping jaws.

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

The main return-track a , by which the boxes are sent from the cashier to the respective stations, consists of two rails $a' a^2$ and the main forwarding-track b , by which the carriers are sent from the respective stations to the cashier, consists of two rails $b' b^2$.

At points along the apparatus corners c are arranged, and when it is desired to arrange the corners so that the tracks will be changed from a horizontal to a vertical position it is necessary that the tracks should be twisted in order that the carrier may pass around the corner and up the vertical part of the track.

c' is the pulley for the upper track a , and c^2 are the pulleys for the lower track b , all of which are mounted on the bracket c^3 at the corner of the line, as shown in the drawings, and, as shown in Fig. 1, the tracks a and b , composed of the rails $a' a^2 b' b^2$, are twisted from a horizontal to a vertical plane, so that the ends of the rails will be joined to the corresponding rails of which the corners are composed. It will thus be seen that as the carrier travels along the tracks a and b and approaches the corner before described it will follow the tracks a and b and will conform to the position of said rails as it passes around the corner. By this arrangement the propelling-cable d , passing around the pulleys c' and c^2 , is always held in proximity with the main tracks a and b . The ends of the tracks of which the corner is composed are supported by suitable brackets e , and these brackets are also arranged along the tracks a and b at desired points, and by means of wires $x x$ the track is suspended from the ceiling.

At the cashier's station there is arranged a stand f , on which are mounted pulleys f' ,

around which the cable d passes and extends down to and is driven by any suitable driving mechanism. At the end of this cashier's station there is arranged a bracket e' , provided with trips s^3 , hereinafter referred to. This station is also provided with a bracket e^2 , provided with a trip s , which will be hereinafter described.

h is a station located at any suitable point along the tracks, and, as shown in the drawings, represents the station nearest the cashier's end of the line.

h' , h^2 , and h^3 represent brackets supporting the tracks and other parts of which the station is constructed.

As shown in Fig. 2, k and k' represent switching-guides located in the path of the carriers traveling along the track a and form a space k^2 between them. The under part of the guide k' is cut away, as shown in dotted lines, at k^3 , Fig. 5, for a purpose to be hereinafter explained.

In Fig. 5^a the outer guide k is broken away to show the guide k' cut away at k^3 , and beyond the guide k' there is shown a part of the guides p and l .

Over the tracks a' and a^2 are arranged the guides l , l' , l^2 , l^3 , l^4 , l^5 , l^6 , forming the spaces m , m' , m^2 , m^3 , m^4 , m^5 . All of these guides and switches are supported at one end by the lug n and at the other end by the lug n' , mounted upon the brackets h' and h^2 , respectively. These lugs are provided with vertical slots n^2 and with notches n^4 , through which the pin n^3 passes and secures the guides in position shown. Guides l , l' , l^2 , l^3 , l^4 , l^5 , and l^6 and the switching-guides k and k' and also the guide p are firmly held together by the pin o' , passing through holes in the guides, and upon this pin are mounted the collars o^2 , which hold the guides at suitable distances apart and form the respective spaces heretofore referred to. At the point o the guides l , l' , l^2 , l^3 , l^4 , l^5 , and l^6 are curved outwardly, as shown in Fig. 2, and the rail a^2 is also curved out at this point, as shown.

Referring now to Fig. 6, the carrier q is provided with the cover q' and with the grip-actuating lever q^2 , mounted in the lugs q^3 , projecting from the side of the carrier. This lever is provided with a spring q^4 to keep the lever q^2 in a raised position. This lever is provided with a pin q^5 , (see Fig. 7,) which engages with the gripping-jaws q^6 . (See Figs. 7 and 8). These gripping-jaws, which constitute the cable-gripping mechanism, are each provided with an irregular slot q^7 , adapted to receive and whose irregular surface works upon the pin q^{14} , secured to the carrier, and which is the means provided for guiding the jaws in their movements, and also with the finger q^8 , arranged to engage with the propelling-cable b . On the bottom of the carrier is mounted the guide q^9 , provided with the flange q^{10} , which projects outwardly under the rails a' and a^2 and retains the carrier upon the track.

The recesses q^{11} are formed in the cover of the carrier to stiffen the same and prevent it from springing, and q^{13} is a spring adapted to open the cover when released by a pressure on the push-button q^{12} , engaging with a suitable catch for holding the cover normally closed. On each end of the cover there is provided a series of holes r , and on one side of the cover a switching-pin r' is located, and this pin is located in the same position on all the carriers irrespective of the stations to which they may belong, whereas the pins r^2 are located in different positions on the cover in the holes r , according to the station to which each carrier belongs.

Supposing a carrier is traveling along the lower track b toward the cashier's station, now when it approaches said station the gripping-lever q^2 passes under the grip-releasing cam s^3 , which is the means for automatically detaching the carriers from the cable and lowers down the grip-operating lever q^2 , and the carrier is thus released from the propelling-cable and the carrier then travels to the end of the line by momentum. After being removed in the usual manner and change made the carrier is placed upon the upper track a with the flange q^{10} under the rails a' and a^2 . The carrier is then pushed along the track by the operator until the grip-operating lever q^2 passes under the grip-engaging cam s , which is the means for attaching the carriers to the cable. This cam lowers down the grip-operating lever q^2 , which opens the jaws to receive the cable, and after passing by momentum said cam the jaws grip the cable, and the carrier thus gripped to the propelling-cable is carried along the track a toward the station to which it belongs. As shown in Fig. 2, the carrier q is approaching the first station and the pin r' on the carrier will enter the space k^2 between the guides k and k' , and the pin r^2 will enter the space m^5 between the guides l^5 and l^6 . Now as the carrier passes along with the pins in the spaces before described the pin r^2 on the carrier will engage with the curved part of the guides l^5 , and the carrier will be moved out of engagement with the switching-guides k' , as the pin r' will be moved outwardly through the opening k^3 , (see Fig. 5,) formed in the guide k' . The carrier will thus be permitted to travel along the line toward the station to which it belongs, which in the present instance would be the seventh station on the line. A carrier belonging to the sixth station on the line would have the pin r^2 arranged in the next opening r toward the fixed pin r' , and the boxes for the rest of the stations would have the pins r^2 arranged correspondingly in the openings r . For a box belonging to the first station the pin r^2 would be arranged in the hole r adjoining the pin r' . By this arrangement, the pin r' passing in the space k^2 between the guides k and k' and the pin r^2 passing in the space between the guides k' and l , the carrier will pass along the track and the pin r^2 will engage with the guide p and tend to hold the box in a

straight line and prevent the pin r' from being moved out from the slot k^3 . The carrier thus passing straight along the rails a and a' , the pin r' will pass by the opening k^3 in the guide k' and will follow the curved portion of the guides, which will move the carrier onto the branch rails a^3 and a^4 . As the carrier passes onto the branch rails a^3 and a^4 , carrying with it the cable d to the position shown in dotted lines, Fig. 4, the grip-lever q^2 will pass under the grip-releasing cam s' , mounted on the bracket h^2 , and the cable will be released from the carrier and the carrier will then travel by momentum along the tracks a^3 and a^4 , over the curved portion shown in Figs. 3 and 4, down to the position shown in Fig. 1.

From the above it is clear that the pins r' are the means provided on each carrier for engaging the switching-guides, and the pins r^2 are independent means provided on each carrier for engaging with the other guides at each station for preventing the switching of the carrier belonging to a station beyond.

t and t' are guides, Figs. 2 and 5, mounted on the bracket h' , adapted to engage with the sides of the carrier as it approaches the station and maintain the carrier in an upright position, so that the pins r' and r^2 will enter between the upper guides. As shown in Fig. 2, there are shown several slots n^2 which are not filled by guides. These may be provided with guides where it is desired to provide a greater number of stations along the line than is shown in the drawings. For such advanced station the pin r^2 will be placed on the carrier in position to engage with the added guides.

I do not limit myself to the arrangement and construction shown, as the same may be varied without departing from the spirit of my invention.

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 a return track, carriers adapted to travel on said tracks, means for propelling said carriers, switching-guides at each station for diverting the carrier belonging to said station, means on each carrier for engaging said switching-guides, other guides at each station, and independent means on each carrier adapted to engage with said last-named guides

for preventing the switching of a carrier belonging to a station beyond.

2. In a conveying apparatus, a forwarding and a return track, carriers adapted to travel on said tracks, a motor-cable for propelling said carriers, a cable-gripping mechanism on said carriers adapted to receive and grip the cable, means for attaching and automatically detaching said carriers from said cable, switching-guides at each station for diverting the carrier belonging to said station, means on each carrier for engaging said switching-guides, other guides at each station, and independent means on each carrier adapted to engage with said last-named guides for preventing the switching of a carrier belonging to a station beyond.

3. In a conveying apparatus, a forwarding and a return track, carriers adapted to travel on said tracks, a motor-cable for propelling said carriers, a cable-gripping mechanism on said carriers adapted to receive and grip the cable, means for attaching and automatically detaching said carriers from said cable, switching-guides at each station for diverting the carrier belonging to said station, a pin on each carrier for engaging said switching-guides, other guides at each station, and another pin on each carrier adapted to engage with said last-named guides for preventing the switching of carriers belonging to stations beyond.

4. In a conveying apparatus, a carrier provided with a cable-gripping mechanism consisting of a spring-controlled operating-lever and pendent gripping-jaws mounted on said lever and provided with irregular surfaces, and means engaging with said surfaces for guiding said jaws in their movements.

5. In a conveying apparatus, a carrier provided with a cable-gripping mechanism consisting of a spring-controlled operating-lever and pendent gripping-jaws mounted on said lever and each provided with an irregular slot, and a pin secured to said carrier and working in said slots and adapted to guide the said jaws in their movements.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 29th day of July, 1895.

JAMES T. COWLEY.

Witnesses:

L. H. TROW,
E. L. HARLOW.