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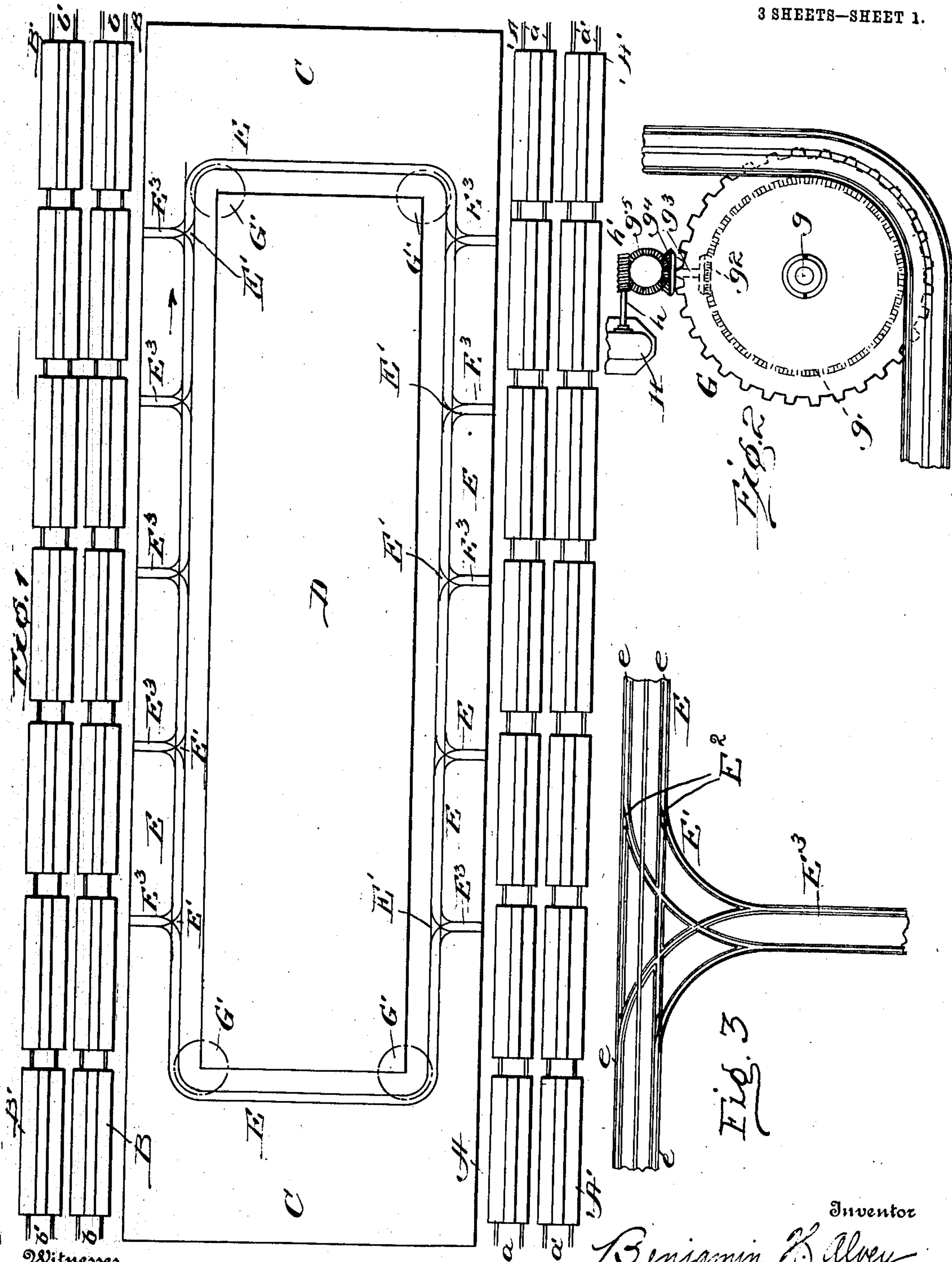
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B. H. ALVEY.

SYSTEM OF TRANSFERRING BAGGAGE OR FREIGHT.

APPLICATION FILED JAN. 4, 1906.

3 SHEETS—SHEET 1.



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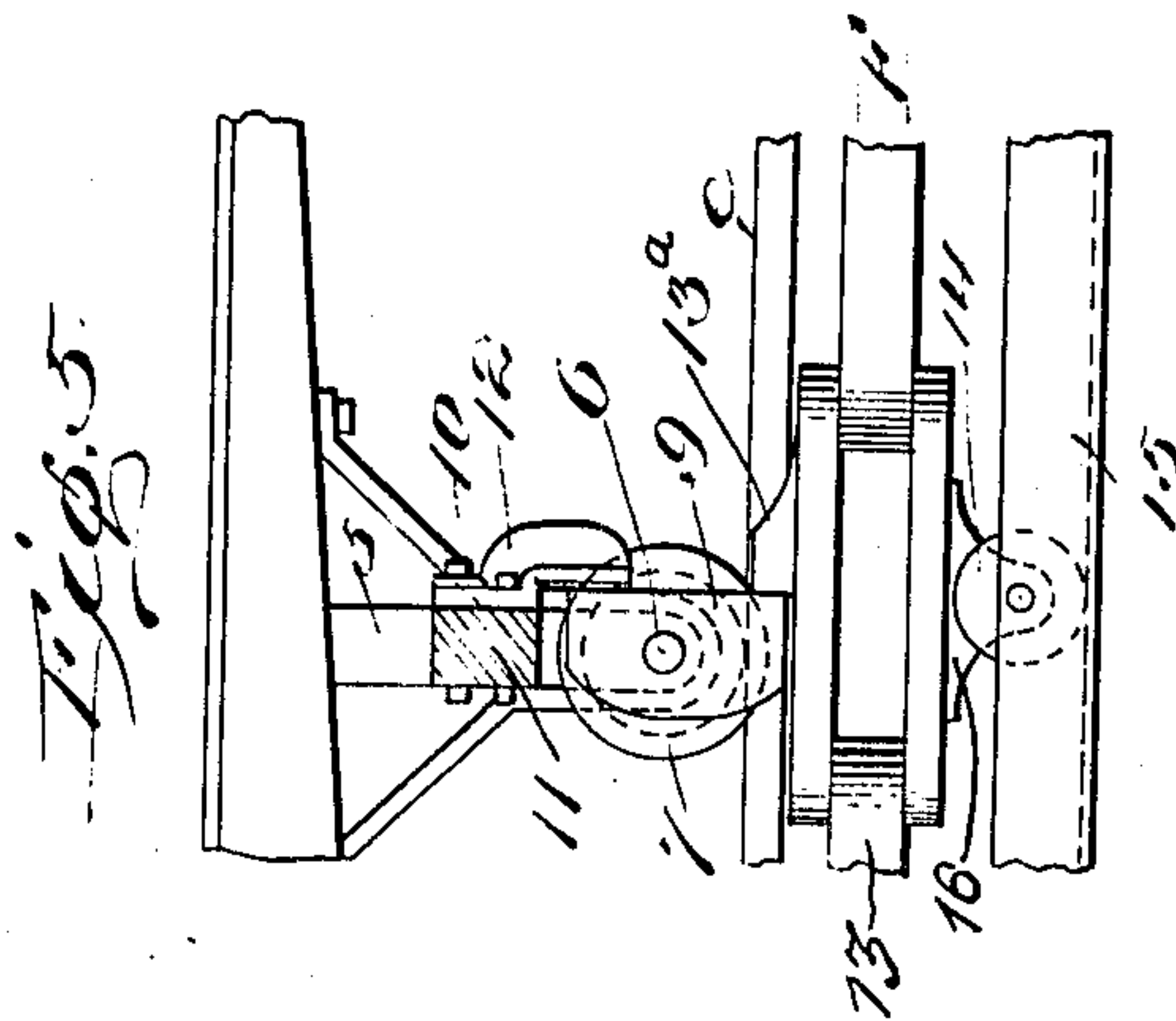
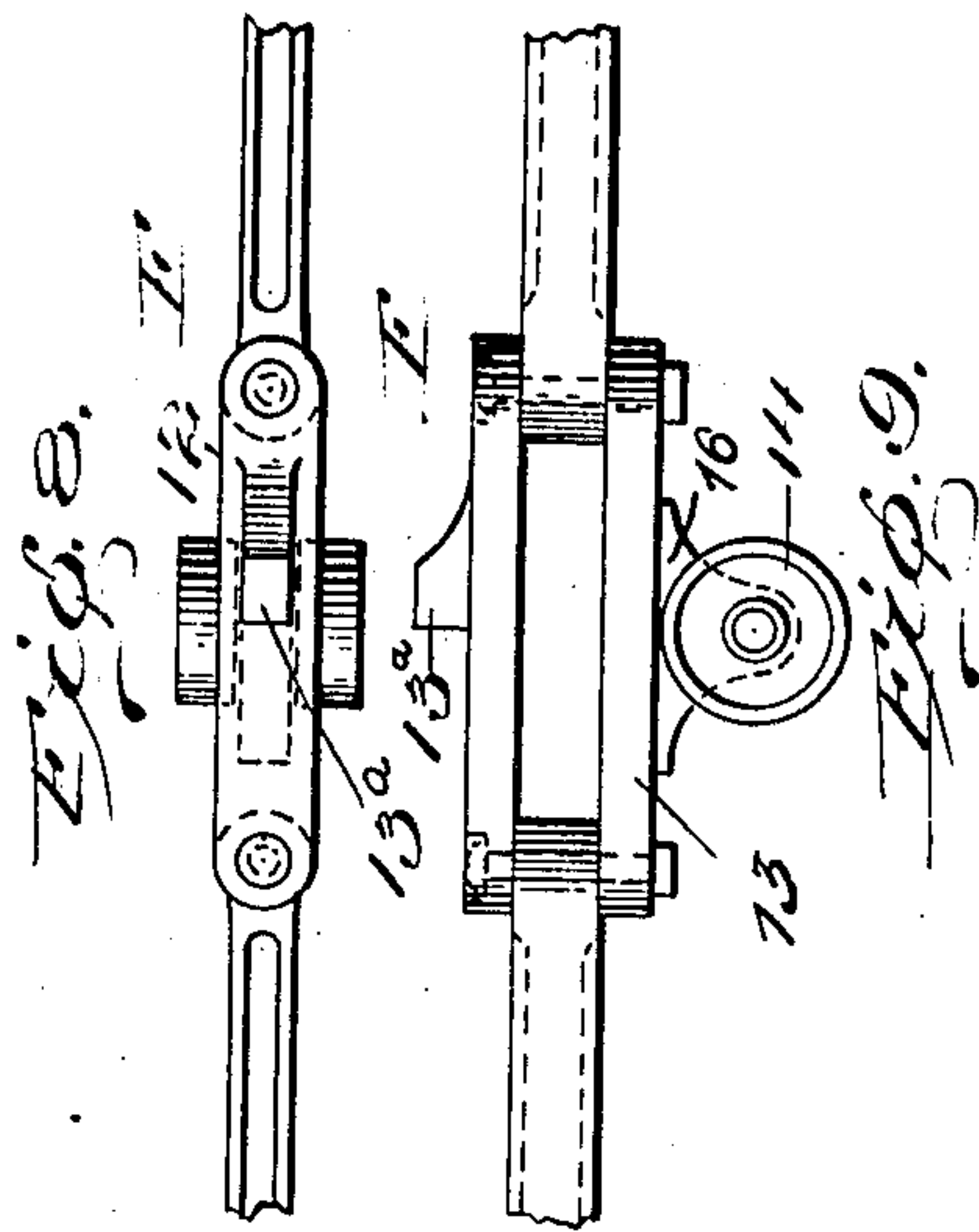
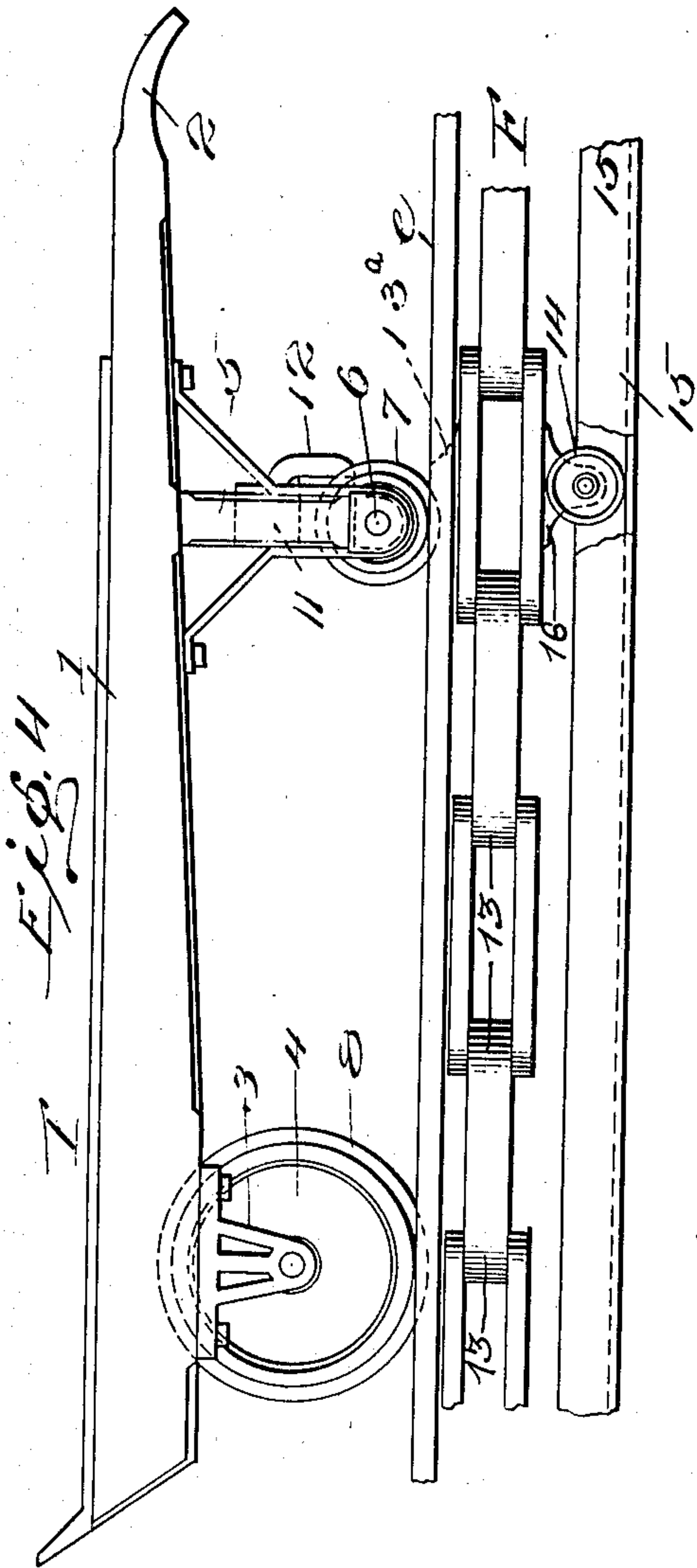
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3 SHEETS—SHEET 2.



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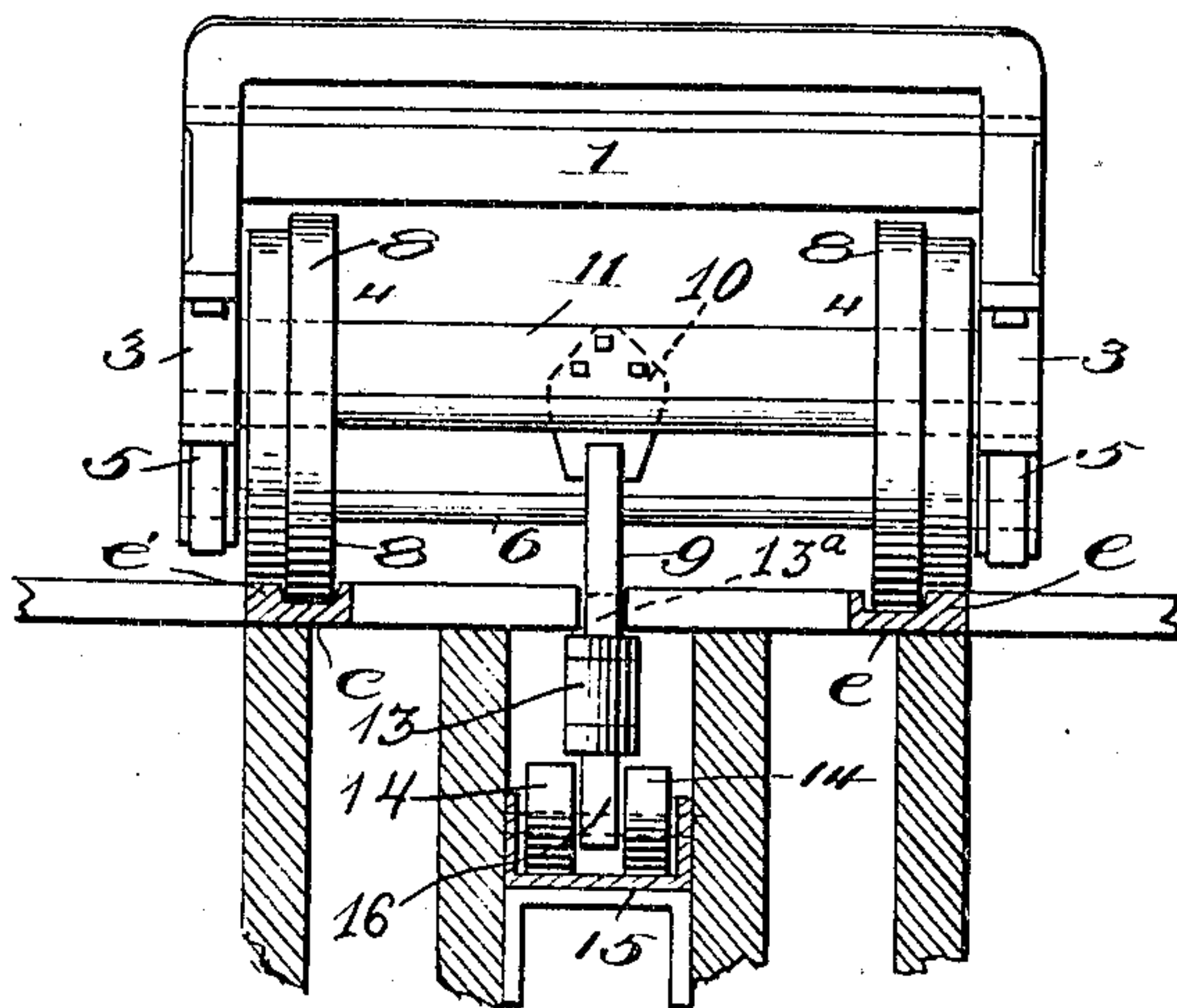
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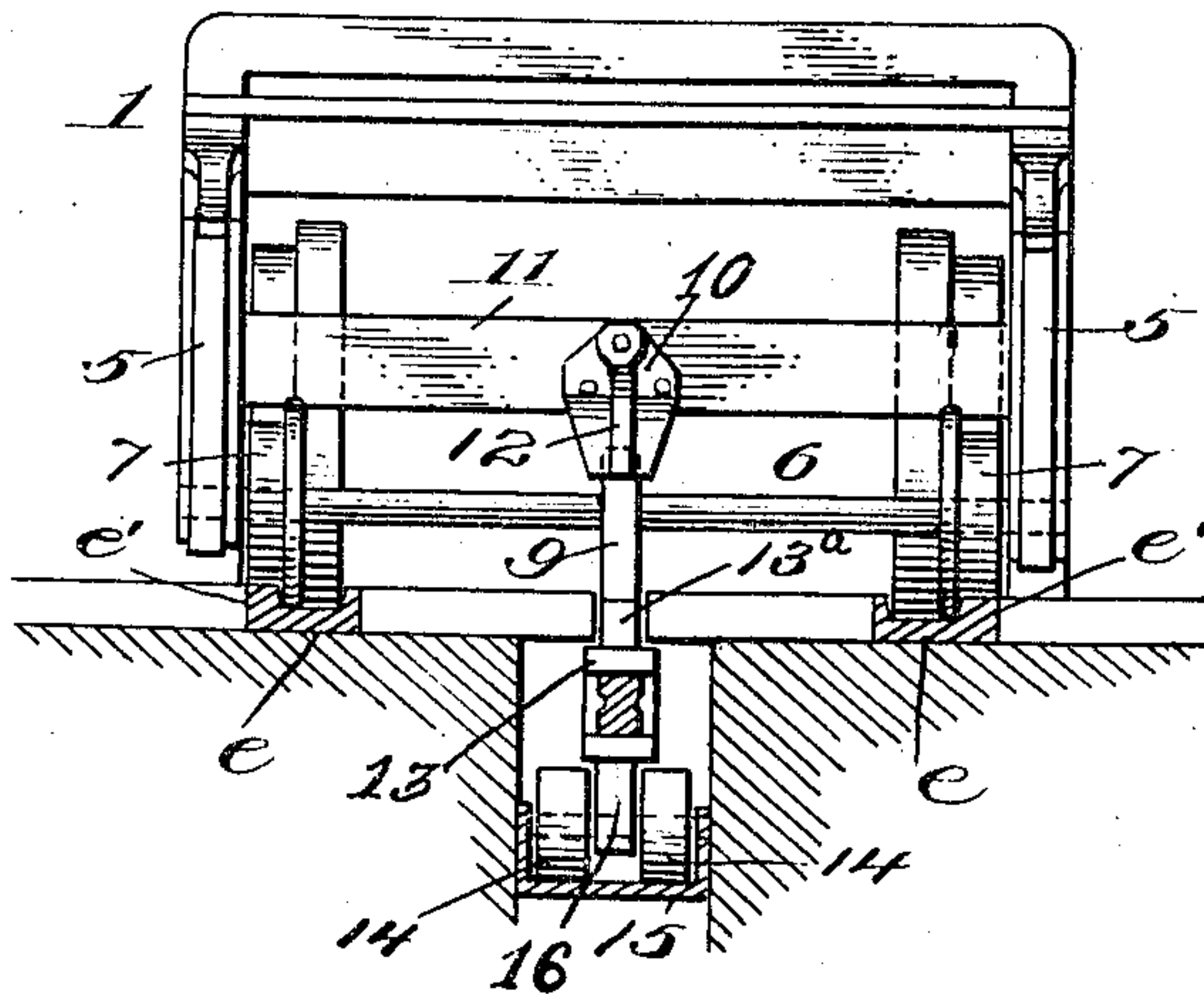
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3 SHEETS—SHEET 3.

*Fig. 6*



*Fig. 7*



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# UNITED STATES PATENT OFFICE.

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## SYSTEM OF TRANSFERRING BAGGAGE OR FREIGHT.

No. 872,212.

Specification of Letters Patent.

Patented Nov. 26, 1907.

Application filed January 4, 1906. Serial No. 294,591.

*To all whom it may concern:*

Be it known that I, BENJAMIN H. ALVEY, a citizen of the United States, residing at Louisville, in the county of Jefferson and State of Kentucky, have invented new and useful Improvements in Systems of Transferring Freight, &c., of which the following is a specification.

This invention relates to a system of transferring baggage or freight whereby all or selected portions of the baggage or freight in any one or all the cars of a train may be transferred to any particular one or more of the cars of another train, for example, with no handling thereof other than such as is incident to the loading and unloading of the trucks employed to transport the articles of freight or baggage from one car to the other. There is need of a practical system of this kind, and it is the aim of my invention to supply such need. In pursuance of this object, I have, as herein shown, devised a system which comprises an endless track upon which run the trucks which carry the freight or baggage. This endless track has one of its sections arranged contiguous to the railway track upon which is to stand a train, any one or more of the cars of which contain freight or baggage to be transferred, or are to receive freight or baggage, while the other section of the train is similarly arranged contiguous to another railway track upon which is to stand another train having freight or baggage to be transferred, as for example to the cars of the first train, or which is to receive freight or baggage from the cars of the first train. Each branch is tapped, at intervals corresponding, or approximately so, to the distance between the doorways of the cars of a train, by lateral branches which are provided with adjustable switches or switch points which may be set to divert the truck from the main track to the cars or lateral branch which they respectively control, or, when said switch leads to a car which contains no baggage or freight to be transferred and is to receive none such, the switch may be set to cause the truck to continue past it on the main track. Below the track there is an endless wheeled propelling mechanism and upon the track there runs the truck or trucks, and said propelling mechanism and truck have interengaging parts.

The construction of the truck and propelling mechanism is hereinafter set forth

and each has advantages for use in the system.

The system is well shown in the accompanying drawings, wherein:—

Figure 1 is a diagrammatic view of the system, with the trucks omitted, as embodied to transfer baggage or freight around and across a platform from a train on one side of said platform to a train on the other side thereof. Fig. 2 is a detail plan view showing a suitable means for driving the propeller. Fig. 3 is a detail view of one of the switches. Fig. 4 is a side elevation of one of the trucks and a portion of said propeller. Fig. 5 is a sectional view vertically through the rear end of the truck, intended particularly to show the preferred means whereby movement of the propeller is transmitted to the truck. Fig. 6 is a section of the system taken in the vertical plane of the front end of one of the trucks and looking toward said truck. Fig. 7 is a similar view on the vertical plane of the rear end of said truck, and looking toward the latter: and Figs. 8 and 9 are a plan view and an elevation respectively, of a portion of the propeller.

A A' and B B' designate trains respectively on double tracks *a, a'* and *b, b'*, which double tracks are arranged on opposite sides of a platform C which runs around a freight shed D. Upon said platform and around said shed there is arranged a main track E for the truck, hereinafter described, to run on, and said track is provided at proper places with double switches E' having suitable adjustable switch points E<sup>2</sup>, leading to lateral branches E<sup>3</sup>. One branch of each of said switches is adapted to lead the trucks off from the main track to the contiguous lateral branch and the other branch of said switch is intended to lead said trucks to said main track. Thus said trucks may run from any of the cars of the train B for example, and be diverted to any of the cars of the train A for example, and in their return be diverted back to any of the cars of said train B. Said track E is preferably composed of U-shaped or grooved rails *e* having broad surfaces *e'* at one side of their respective grooves, as clearly shown in Figs. 6 and 7. The rails are preferably sunk flush with the floor of the platform. Traveling around the shed and between the rails of said track is a traveling propelling means F. This propelling means is preferably an endless chain, as shown, and



a suitable driving means therefor comprises a large gear G arranged contiguous to one of the turns of the propeller and having its teeth adapted to engage the links of the latter, said gear being fixed in horizontal position on a vertical shaft  $g$  and provided with crown teeth  $g'$  which are engaged by a pinion  $g^2$  mounted on one end of a countershaft  $g^3$ , which countershaft has at its other end a pinion  $g^4$  which is driven by a gear  $g^5$  which in turn is driven by a worm  $h'$  mounted on the shaft  $h$  of a suitable driving engine or motor H. In the other turns of the propeller F loose gears G' are provided to guide the same.

The truck which is preferably employed, is a wheeled baggage or freight truck I, modified to adapt it to this system. The preferred form thereof is as follows:—

1 designates a frame of any suitable construction having at one end a pair of handles 2 by means of which it may be manually propelled. Depending from that end of the frame which for convenience will be termed the front end of the same, are stirrups or hangers 3 which form bearings for the shaft of the front wheels 4, and depending from the other end of said frame are supports 5 in the lower ends of which is journaled the axle 6 of the rear wheels 7. Said wheels are flanged to adapt them to the before mentioned track E and the switches thereof, and particular attention is called to the fact that the flanges 8 of the front wheels are sufficiently broad to enable the truck to be run over other surfaces than upon the track aforesaid, without cutting into said surfaces.

The truck is provided with a suitable means adapted to be engaged by the traveling propeller for imparting the movement of the latter to said truck. This means preferably consists of an arm or plate 9 adapted to be adjusted downward, by hand or otherwise, into the path of said traveling propeller when the truck is to be propelled thereby and adjusted upward so as to be out of the way when the truck is to be manually propelled. To adapt it to the adjustments mentioned, said arm or plate 9 is preferably pivotally supported and the axle 6 of the rear wheels may be utilized as the support upon which the arm is mounted to turn pivotally. In order to hold said arm or plate in its operative position, a stop is provided to resist the tendency of the traveling propeller to turn it pivotally. Said stop preferably comprises a plate 10 suitably fixed to the rear cross bar 11 of the truck frame and having a depending portion 12 which is arranged rearward of the arm or plate 9 and in position to engage the rear side or edge of the upper free end of the same and to hold said arm or plate against movement rearward beyond the limits which would cause its lower end properly to engage or be engaged by the traveling propeller.

For the purpose of imparting the move-

ment of the traveling propeller F to the trucks, each link, or any desired number of links 13 of the propeller are preferably provided with lugs or projections  $13^a$  which rise therefrom into position to engage the arm or plate 9 of the truck on the main track E but terminate approximately in the plane of the upper surface of the floor of the platform: that is to say, they do not project appreciably above said floor, and hence they do not interfere with the movements of persons, or trucks, or other objects, across or upon said floor, which is intended to be hereby meant.

To support the traveling propeller against dragging and to maintain its lugs  $13^a$  in proper position to engage the arms or plates 9 of the trucks, as well as to reduce the power required to operate the propeller, the latter is mounted on wheels 14. These wheels are journaled in bearings 16 which are fixed to and depend from those links of said propeller which are also provided with said lugs, and they run in a grooved track 15, or channel iron arranged below said propeller.

From the foregoing description it will be apparent that the operation of the system is as follows:—Assuming that it is intended to transfer baggage from the cars of train A to the cars of train B, and that the trucks are disengaged from the propeller and the switch points  $E^2$  of the switches E are properly set; a truck is wheeled onto the track E with its arm or plate 9 lowered into operative position, and said truck is picked up by a projection  $13^a$  of the propeller F, which latter, it is assumed is traveling in the direction of the arrows. The empty truck is thus propelled by said propeller until it reaches the first switch which is set to divert it, and it is then diverted from said propeller and by the momentum which has been imparted to it by the propeller, it travels to and upon the lateral branch  $E^3$  which communicates with said diverting switch and leads to the door of the car to be unloaded. It is then loaded by the attendant and moved sufficiently to return it to the main track E when it is immediately picked up by the propeller and propelled thereby automatically to the car to be loaded, at which place and by the proper setting of the switch leading to said car, it is again diverted from the main track and freed from the propeller. It is now unloaded and returned to the main track and again picked up by said propeller and transferred to the first car or to any other car containing freight or baggage which is to be transferred. Meanwhile other trucks are, it is assumed, being loaded and transferred from one car or train to the other: all without any handling whatever of the trucks between the loading and unloading places. Moreover, as the trucks have wheels with broad flanges they are adapted to grooved rails and may also be



pushed or pulled along the platform itself or in the car without cutting the wood of the platform or car. This is important as it enables said trucks to be used in the ordinary hand-propelled manner, when desired; and to further enable the truck to be used in such manner, its arms or plates 9 are adapted as hereinbefore stated to be adjusted to be out of the way of such use. Moreover, as the tracks are sunk to the level of the platform and the propelling mechanism is arranged beneath said platform, they do not interfere with the free use of said platform for walking or other purposes. When propelling the truck by hand, it may be run on the two front wheels 4, the broad flanges 8 of which form the treads: but if it is to run on its four wheels its rear wheels 7 should have broad flanges for a similar purpose.

It is obvious that a loaded truck may be pushed from any place in the platform onto the main track and will be conveyed thence to any place desired and to which the switches have been set to deliver it and it will be equally obvious that switches and lateral or other tracks may tap the main track at any place to or from which it is desired to transfer freight or other goods, either, in or outside of a warehouse or other buildings, or to or from cars, for examples.

Having thus described the invention what I believe to be new and desire to secure by Letters Patent is:—

1. A system of conveying freight or baggage from the cars of one train to the cars of a different train, consisting of an endless track having one of its sections adjacent to one train and another section adjacent to the other train, and each of said sections tapped, at intervals, approximately corresponding to the distance between doorways of cars, with switches which lead to said doorways and are provided with adjustable points adapted to be set to divert trucks from said sections to said doorways, an endless traveling propelling mechanism and a truck adapted to travel on said track and to be propelled by said propelling mechanism.

2. A system of conveying freight or baggage from the cars of one train to the cars of a different train, consisting of an endless track having one of its sections adjacent to one train and another section adjacent to the other train, and each of said sections tapped, at intervals approximately corresponding to the distance between doorways of cars, with switches which lead to said doorways and are provided with adjustable points adapted to be set to divert trucks from said sections to said doorways, an endless traveling propelling mechanism arranged below the track and mounted upon wheels, and a truck adapted to travel on said track and to be propelled by said propelling mechanism.

3. A system of conveying freight or bag-

gage from the cars of one train to the cars of a different train, consisting of an endless track having one of its sections adjacent to one train and another section adjacent to the other train, and each of said sections tapped, at intervals approximately corresponding to the distance between doorways of cars, with switches which lead to said doorways and are provided with adjustable points adapted to be set to divert trucks from said sections to said doorways, an endless traveling propelling mechanism arranged below the track and mounted upon wheels, and a truck adapted to travel on said track and to be propelled by said propelling mechanism, said truck having a depending arm to be engaged by the propelling mechanism.

4. A system of conveying freight or baggage from the cars of one train to the cars of a different train, consisting of an endless track having one of its sections adjacent to one train and another section adjacent to the other train, and each of said sections tapped, at intervals approximately corresponding to the distance between doorways of cars, with switches which lead to said doorways and are provided with adjustable points adapted to be set to divert trucks from said sections to said doorways, an endless traveling propelling mechanism arranged below the track and mounted upon wheels, and a truck adapted to travel on said track and to be propelled by said propelling mechanism, said truck having a depending pivoted arm to be engaged by the propelling mechanism and a stop to engage the arm.

5. A system of conveying freight or baggage, comprising an endless track tapped at intervals by switches having adjustable points, a baggage or freight truck adapted to travel on the track, and an endless traveling propelling means arranged below the track and provided at intervals with links which are mounted upon carrying wheels and have upward projections respectively adapted to engage the truck.

6. A system of conveying freight or baggage, comprising an endless track tapped at intervals by switches having adjustable points, a baggage or freight truck adapted to travel on the track and provided with a pivoted depending arm and with a stop-plate which engages said arm, and an endless traveling propelling means for the truck, arranged below the track and provided at intervals with links which are mounted upon carrying wheels and have upward projections respectively adapted to engage said depending arm.

7. A system of conveying freight or baggage, comprising an endless grooved track which is tapped at intervals by switches having adjustable points, a hand truck adapted to travel on said track and having its wheels provided with broad flanges whereby it may



be readily pushed by hand on any ordinary surface, and an endless traveling propelling means adapted to propel the truck on said track, said truck and propelling means having readily disconnectible parts adapted to engage each other for transmitting movement from the latter to the former.

8. In combination with a floor, an endless grooved track set therein and having its upper surface approximately flush therewith, said track tapped at intervals by switches having adjustable points, a hand truck having wheels the treads of which are adapted to run in the grooved track and are broad to adapt them also to run on said floor, and an endless traveling propelling means adapted to propel the truck on said track, said truck and propelling means having readily disconnectible parts adapted to engage each other for transmitting movement from the latter to the former.

9. In combination with a floor, an endless grooved track set therein and having its upper surface approximately flush therewith, said track tapped at intervals by switches having adjustable points, a hand truck hav-

ing wheels the treads of which are adapted to run in the grooved track and are broad to adapt them also to run on said floor, and an endless traveling propelling means arranged below the track and provided at intervals with links which are mounted upon carrying wheels and have upward projections respectively adapted to engage a truck and terminating approximately in the plane of the floor.

10. In a system of conveying freight or baggage, an endless track, an endless traveling propelling means adjacent thereto, means for driving the latter, comprising a gear arranged contiguous to one of the turns of the propelling means and having teeth to engage the latter and also having crown teeth, a pinion to engage said crown teeth, a source of power and connections between the latter and the pinion.

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

BENJAMIN HARDIN ALVEY.

Witnesses:

H. E. WILLIAMS,  
ROY R. WORRALL.