

No. 889,368.

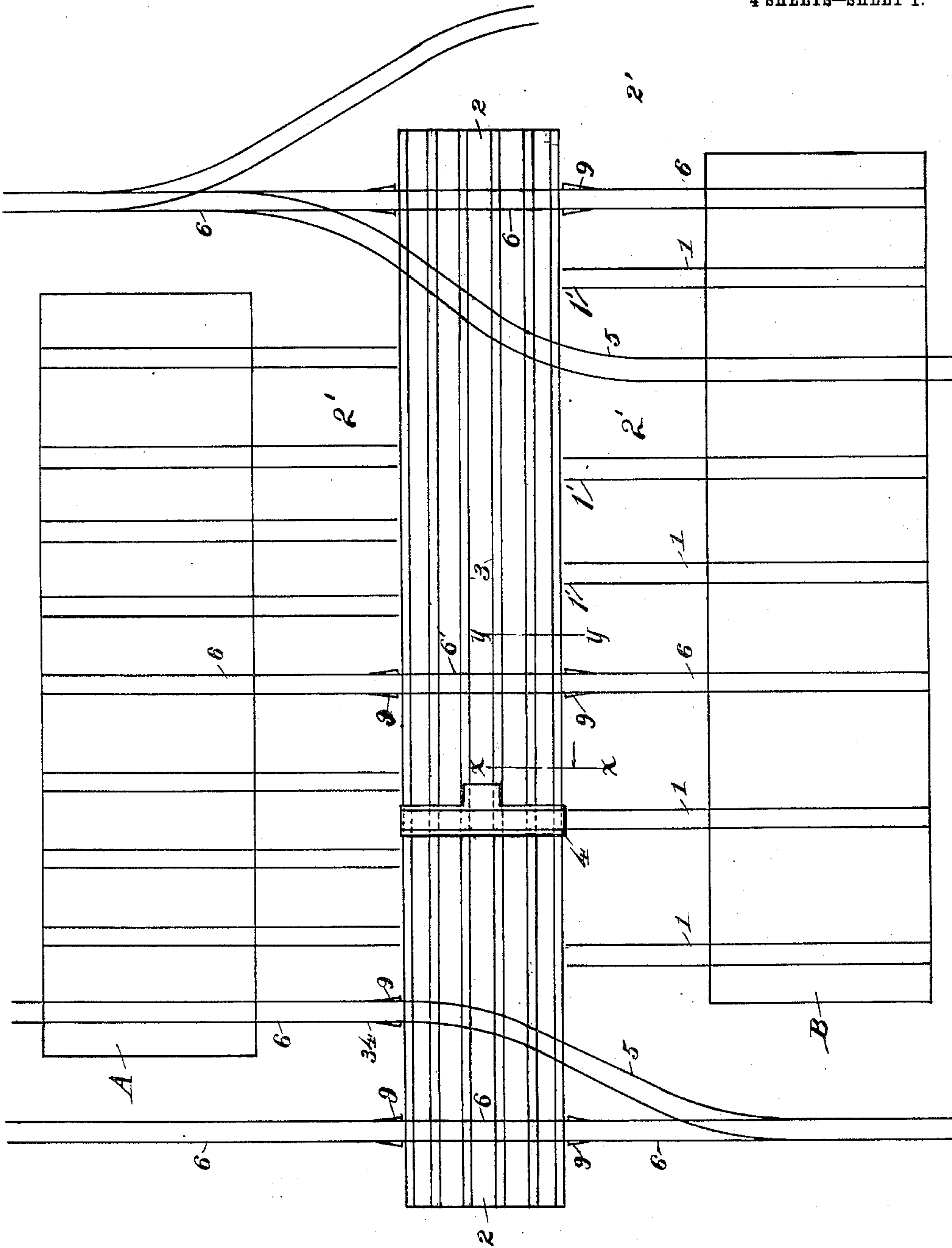
PATENTED JUNE 2, 1908.

C. G. HAWLEY.

### NORMAL SURFACE TRANSFER TABLE.

APPLICATION FILED SEPT. 24, 1906.

4 SHEETS—SHEET 1.



*Witnesses:*

H. S. Austin.

John P. Lefranc.

Fig. 1.

*Inventor*

Charles Robert Knowlton

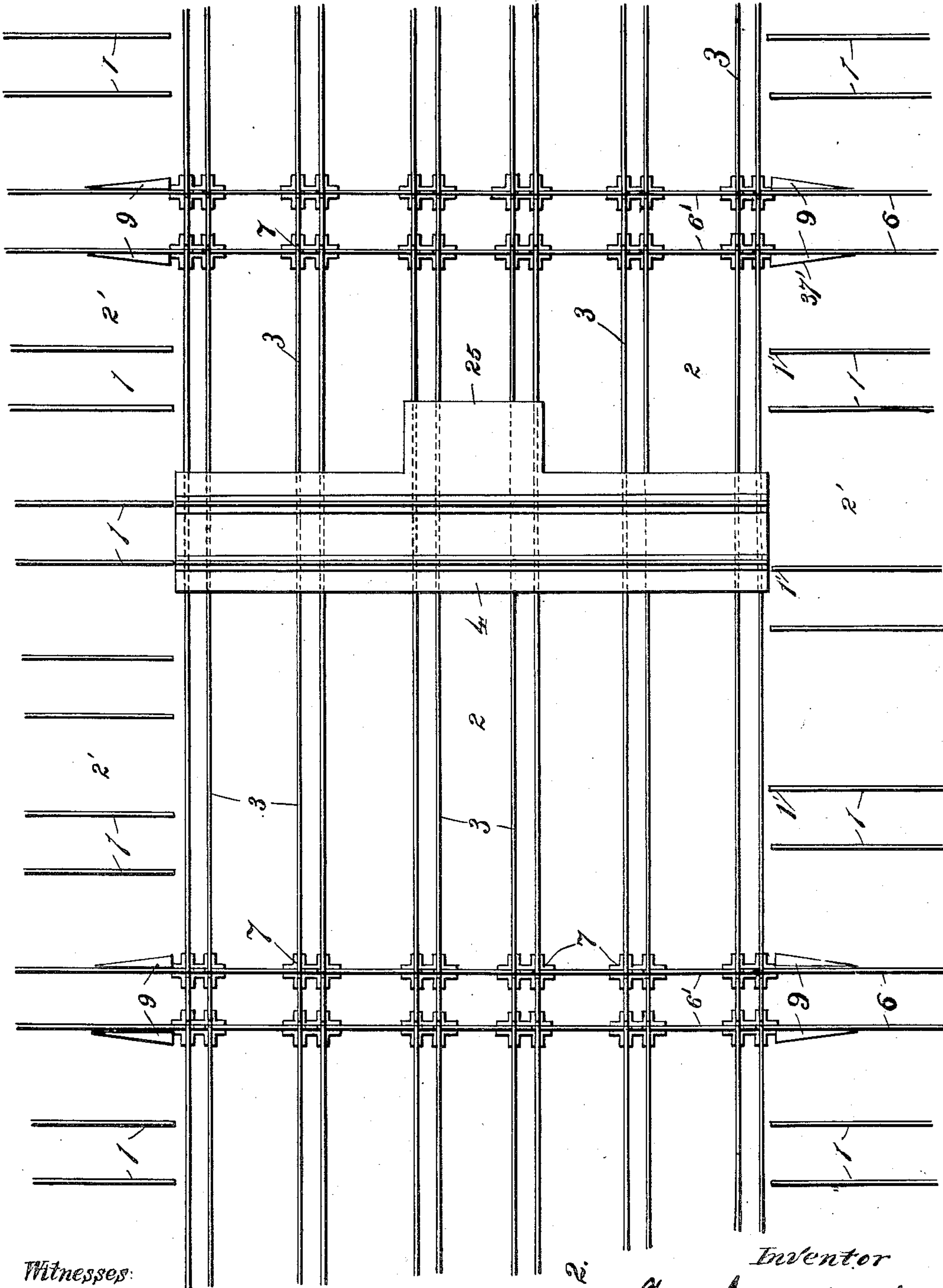
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4 SHEETS—SHEET 2.



Witnesses:

*W. S. Austin.*  
*John P. Lafave.*

*Fig. 2.*

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4 SHEETS—SHEET 3.

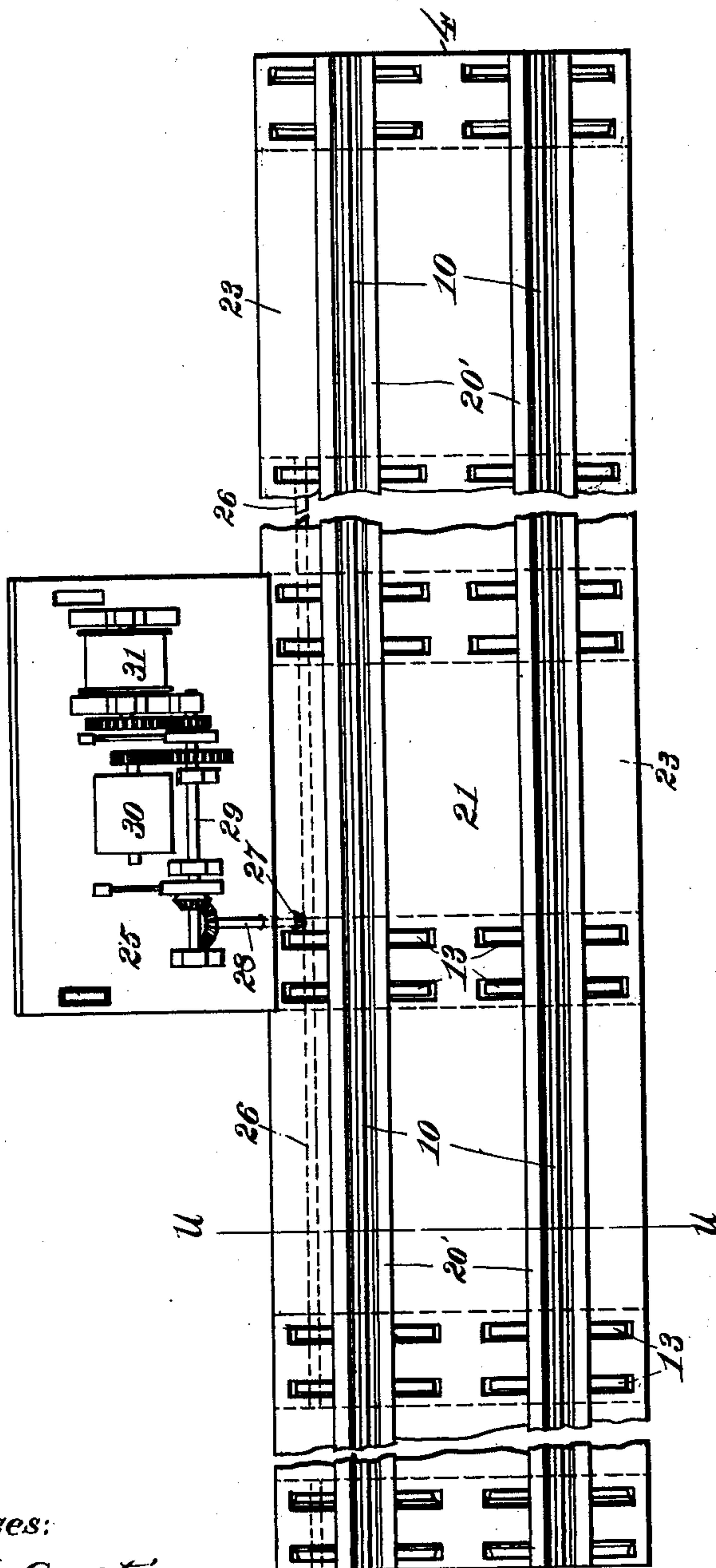


Fig. 3.

Witnesses:

H. S. Austin

John R. Lefevre

Inventor:

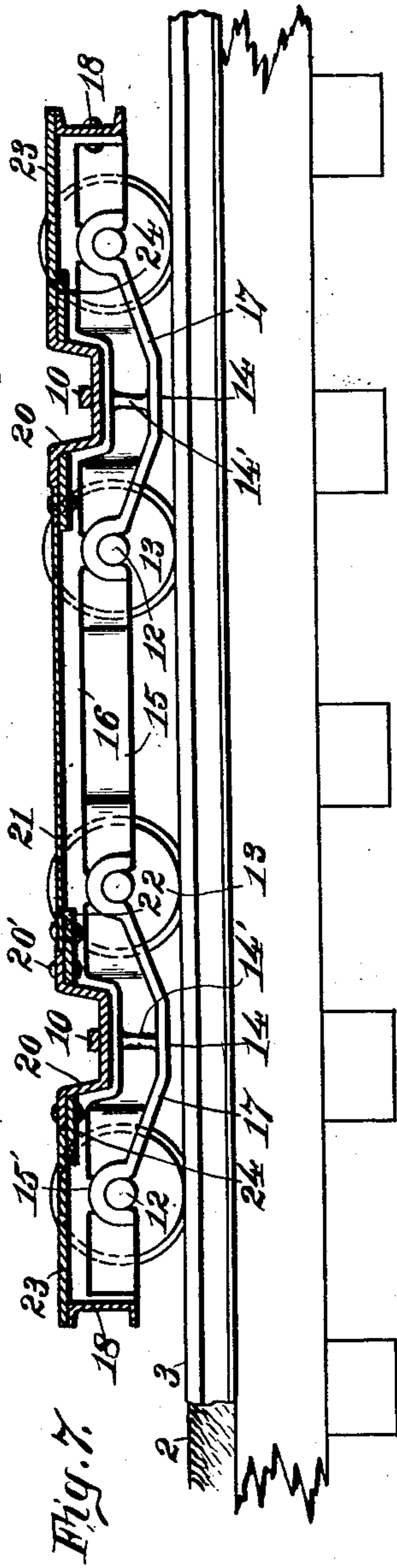
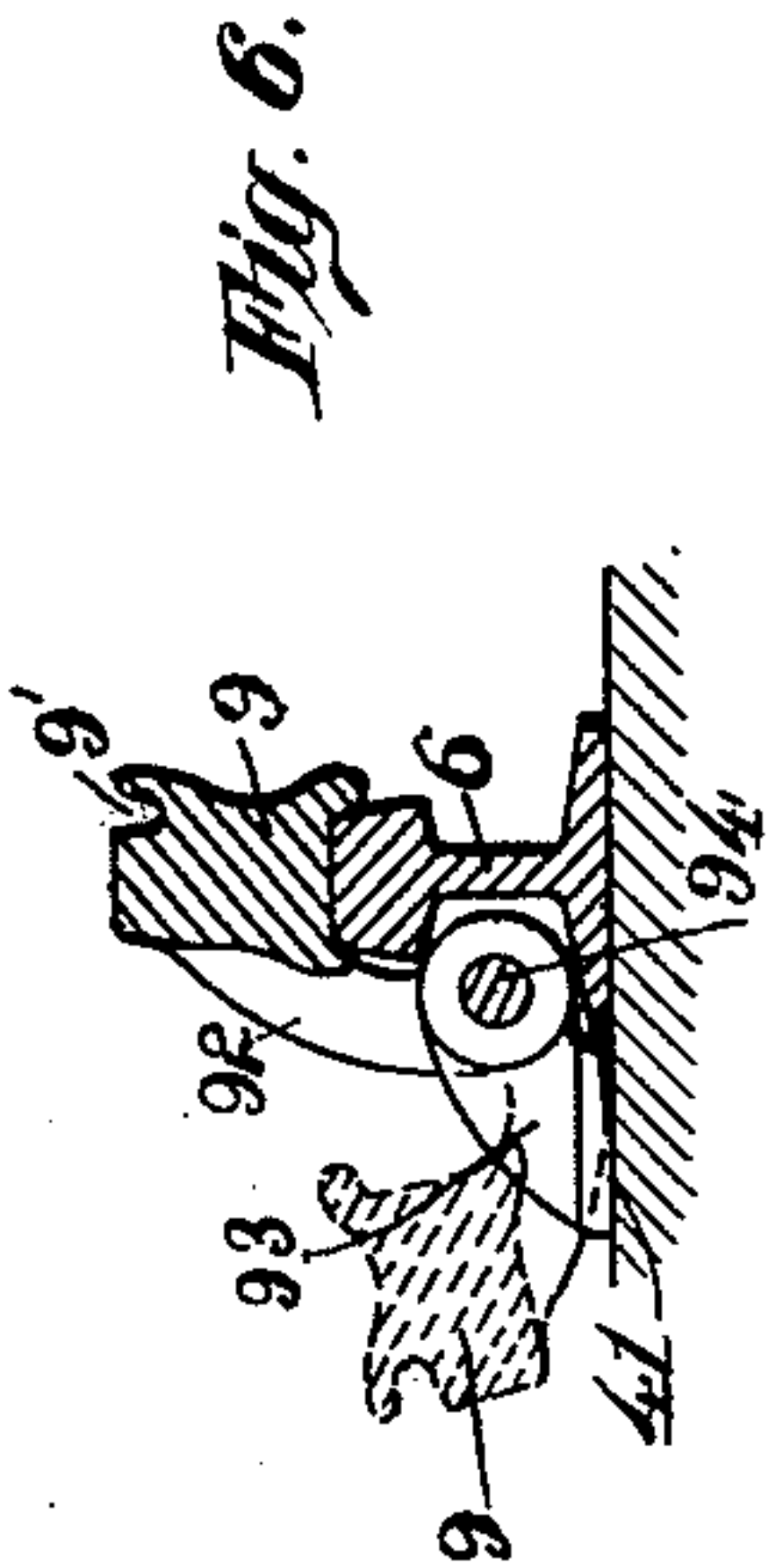
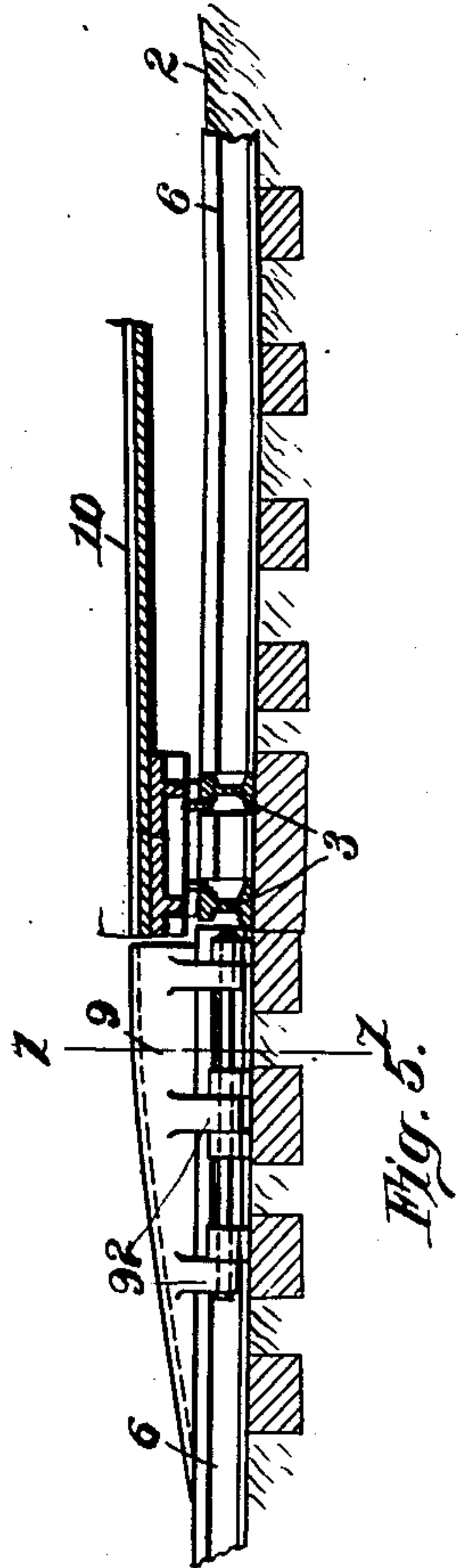
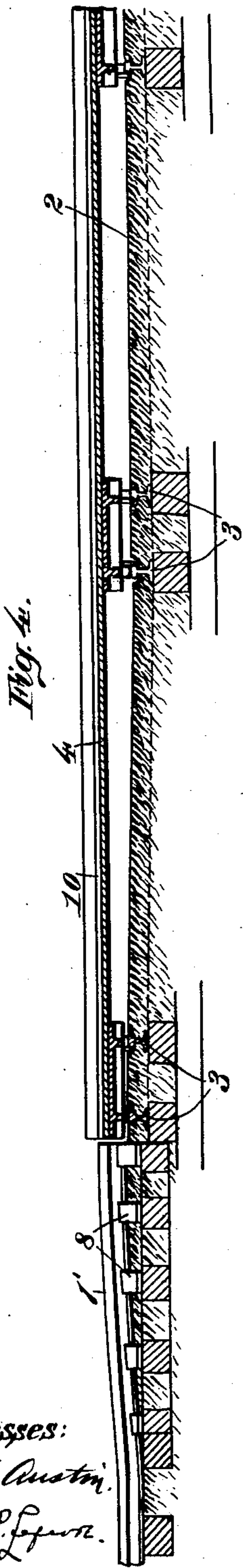
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4 SHEETS—SHEET 4.



Witnesses:  
H. S. Austin.  
John R. Lefevre.

Inventor:

Charles G. Hawley



# UNITED STATES PATENT OFFICE

CHARLES GILBERT HAWLEY, OF CHICAGO, ILLINOIS, ASSIGNOR TO FREDERICK A. GALE,  
OF CHICAGO, ILLINOIS.

## NORMAL-SURFACE TRANSFER-TABLE.

No. 889,368.

Specification of Letters Patent.

Patented June 2, 1908.

Application filed September 24, 1906. Serial No. 335,886.

*To all whom it may concern:*

Be it known that I, CHARLES GILBERT HAWLEY, a citizen of the United States, and a resident of Chicago, Cook county, Illinois, have invented a certain new, useful, and Improved Normal-Surface Transfer-Table, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in means for shifting locomotives and cars laterally from one track to another, and the invention has special reference to improvements in transfer tables and yards as constructed and employed in and about railroad shops and depots.

The object of my invention is to provide means for transferring rolling stock from one track to another, and, primarily, to provide means of such character as to obviate the use of the usual pit and permit the practically unrestricted use of the transfer surface or area for all the traffic that may be necessary between and about the shops or depots.

In carrying out my invention I do not dig a pit in which to operate the transfer table, but utilize the normal surface of the yard and construct a low table adapted to serve the tracks which terminate at or abut the transfer surface. The term "transfer surface" as here used is intended to designate the surface which is traversed by the transfer table.

Further particulars of my invention involving structures and arrangements whereby the tracks to be served are adapted for connection with the transfer table and involving also the peculiar structure of the low movable table will be described hereinafter.

In the accompanying drawings which form a part of this specification, I have illustrated a preferred embodiment and manner of carrying out the invention, but it will be understood that my invention is not restricted to the specific construction shown in the drawings and hereinafter described in detail.

In said drawings Figure 1 is a diagrammatic plan view of a transfer yard and table embodying my invention, the transfer surface being shown as lying between two railroad shops, sheds or depots; Fig. 2 is a plan view of a portion thereof, enlarged, showing two tracks which extend directly across the transfer surface; Fig. 3 is an enlarged plan view of the transfer table; Fig. 4 is a vertical

transverse section on the line  $x-x$  of Fig. 1; Fig. 5 is a similar view on the line  $y-y$  of Fig. 1; Fig. 6 is an enlarged sectional view on the line  $z-z$  of Fig. 5; and Fig. 7 is an enlarged vertical section of the transfer table, on the line  $u-u$  of Fig. 3.

As indicated in the foregoing, I lay the tracks which are to carry the transfer table directly upon the surface of the railroad yard, preferably, however, embedding the rails in the ground so that the tops thereof are flush with the normal surface.

Referring to the drawings, A and B represent two railroad shops, each containing a number of tracks, 1—1, to receive rolling stock; 2, represents the surface of the yard, and 3—3, are the transfer table tracks above referred to. Figs. 4 and 5 show the manner of laying the tracks, 3. I may arrange these tracks in pairs as shown or may use single rails, according to the service to be performed. As indicated in Figs. 4 and 5, the ground is slightly depressed toward the middle of the transfer surface. My purpose in thus depressing the transfer surface will be explained hereinafter. The transfer table, 4, hereinafter described in detail, is mounted upon wheels which roll upon the tracks, 3—3, and it is adapted to travel from one end thereof to the other. These rails 3, and the transfer surface defined thereby, are preferably longer than the buildings, A and B to the end that the transfer surface may be traversed by through tracks, 6—6 from which rolling stock may be received for delivery to the shops or buildings, A—B and likewise to which the same may be returned or delivered. It will be seen that as the normal surface of the yard between and about the buildings is not interrupted, the tracks, 6, and other tracks, 5, may all be laid upon the normal surface; that is, may traverse the transfer area. I prefer that all rails traversing said area shall, upon approaching the same, be sunk into the ground so that their tops will be flush with the surface, 2, and with the transfer table rails, 3. The slight depression of the ground at the middle of the transfer area does not interfere with the passage of rolling stock upon the cross ties. I prefer that the intersecting rails shall be joined by frogs, 7, as shown in Fig. 2. It will now be seen that I may construct my transfer yard upon a surface which is already occupied by the numerous through and



switching tracks necessary to the railroad shops or buildings, without interfering with the service upon said tracks and without removing or disturbing them beyond the necessary cutting and frogging of the rails. The tracks, 1—1, in adjoining railroad shops are rarely directly opposite one another, but in some cases they are so nearly in line that they may be connected by direct cross tracks, 6', as represented in Figs. 1 and 2. These tracks, like the tracks, 5 and 6, are sunk into the ground so as not to interfere with the movement of the transfer table on the rails, 3. The tracks, 6—6, may lead into one of the buildings or may be entirely outside thereof, as indicated in Fig. 1, it being evident that the transfer surface may be extended at slight cost to meet such outlying tracks and thus adapt the table to serve the same. The low rails, 10, upon the transfer tables, 4, stand only a few inches above the marginal table-tracks, 3, but nevertheless, are too high to meet the stub ends of the track, 1, laid upon the marginal surfaces, 2'. I therefore elevate the ends of said tracks, as shown in Fig. 4, bending the ends, 1', of the rails upward, and preferably supporting them upon rail-chairs, 8. The fixing of the ends of the rails at the height of the table in this manner enables me to dispense with movable parts or members which would otherwise be required to join the table to the tracks, 1. An incidental advantage attaching to the elevation of the ends of the track, 1, is that they prevent rolling stock from accidentally passing off the rails and onto the transfer surface.

As a means of connecting the cross tracks with the transfer tables at necessary times, I equip said tracks with movable members, 9—9, at points adjacent to the transfer surface. One of these members is shown in detail in Figs. 5 and 6, from which it will be seen that the track or table alining or joining device comprises a tapered or wedge-like block or shoe, of the cross track or rail, 6. The upper surface of the shoe is preferably provided with a flange groove, 9', the wall of which merges with the inner side of the rail, 6 when the block is raised into position on the rail. The block is pivotally fixed upon the ends of the ties at the side of the rail by means of arms, 9<sup>2</sup>, plates, 9<sup>3</sup>, and a pivot pin, 9<sup>4</sup>. The normal position of the wedge or block is at the side of the rail, as shown by dotted lines in Fig. 6 and by full lines in Figs. 1 and 2. The block is only raised at times when the table is stopped at the track, 6. If desired, mechanical means may be provided for throwing the blocks, but as a rule they are sufficiently light to be operated by hand. It is obvious that when the blocks 9, of any track, 6, are raised to register with the rails of the table the car or locomotive can be moved onto or taken from the table. In the

absence of the table and when the blocks are down, the cross tracks, 6, are open for through traffic.

A distinct advantage of my invention is that the ground surface between the buildings is preserved at substantially uniform level throughout, and as none of the rails project above the transfer surface, trucks and pedestrians may cross the transfer surface freely in all directions.

The table which I prefer to employ upon the transfer yard of my invention is a low structure, comprising a plurality of cross bearers, 15, having journals for the axles, 12, of the carrying wheels, 13; together with a plurality of longitudinal members. I prefer to use four wheels upon each cross bearer and between the pairs of wheels I depress the cross bearers, strengthening these portions by flanges, 17, and webs, 14'. The depressions in the cross bearers receive the channel members, 20, which are continuous from end to end of the table and carry the low rails, 10. The ends of the cross bearers are connected by continuous channels, 18, and top plates, 21 and 23, are employed to strengthen the table and withstand lateral strains. These plates also serve as a floor or path for pedestrians. The middle portions, 16, of the cross bearers may if desired be omitted and links or flexible members substituted, and in any case said middle portions serve only to tie the trucks together and hence may be of less cross-sectional area than the load-carrying portions. Sagging of the floor plates is prevented by means of spliced plates, 24. For driving the table, I employ a motor, 30, carried by an extension, 25, of the table. All except the end pair of wheels on one side of the table are connected by a shaft, 26; that is, the wheels are mounted on a single axle and this being provided with a gear, is connected with a motor through a train of gears, 27, 28 and 29. The extension or platform, 25, also carries a cable winding drum or winch, 31, on which is wound the cable that is used in moving rolling stock that is "dead," i. e. that which is not moved by its own power. The carrying wheels at the ends of the table are of small diameter, and as it would be difficult to attach a driving gear to so small a wheel, I increase the diameter of the wheels beneath the middle portion of the table. At this point I have to explain that the desirability of larger wheels at these points for the reasons stated and also for the purpose of decreasing the resistance to the movement is the sole reason for depressing the transfer surface. This being the case, it will be obvious that a different arrangement of the supporting wheels would permit the employment of a perfectly level transfer surface, or even a surface crowned at the center.

The use and operation of my invention is



as follows: A locomotive or car arriving at the shops upon one of the outlying tracks, 6, the blocks or shoes, 9, thereof are raised and the transfer table is moved into register therewith. The locomotive is then moved onto the table, whereupon the table is started and passes along the transfer surface until a particular stall or stub track, 1, is reached. The table being here stopped in register with the raised ends, the locomotive or car may be readily driven off the table and into the adjoining building. The operation of shifting rolling stock from one stall track to another is as above described, saving that in such cases none of the shoes need be operated unless the stall track chances to be one of the straight through tracks, 6'. It will be obvious that the table may be operated without interrupting the passage of cars or trains upon any of the through tracks.

As various modifications of my invention will readily suggest themselves to one skilled in the art, I do not confine the invention to the specific constructions and structures herein shown and described.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

1. The improvements herein described comprising a plurality of transfer table rails, in combination with a plurality of other rails traversing the surface containing said transfer table rails, all said rails being sunken in the ground with their tops substantially flush with the surface thereof, a transfer table, and a plurality of stall or stub tracks having permanently inclined ends to register with said transfer table, substantially as described.

2. The improvements herein described comprising a plurality of relatively transverse stub track rails and transfer table rails respectively above and below a given horizontal plane, a transfer table to move on said transfer table rails and the ends of said stub track rails being upwardly inclined and thus permanently supported adjacent to the marginal transfer table rails, substantially as described.

3. The improvements herein described comprising a plurality of relatively transverse stub track rails and transfer table rails, said stub track rails being inclined upwardly adjacent to the marginal transfer table rails, in combination with means fixing said stub track rails in inclined position, and a transfer table provided with rails adapted to register with said stub track rails, substantially as described.

4. The improvements herein described comprising a plurality of transfer table rails laid in the ground, in combination with a plurality of track rails also laid in the ground and traversing said transfer table rails, a transfer table adapted to move on said trans-

fer table rails, a plurality of stub or stall tracks wherewith said table is adapted to register and terminating adjacent to said marginal transfer table rails, and elevating or wedge blocks provided alongside the rails which traverse the transfer table rails, adjacent to said marginal rails and adapted to be set upon said traversing rails to cause them to register with said table, substantially as described.

5. The improvements herein described comprising a plurality of transfer table rails, in combination with track rails which cross the surface occupied by said transfer table rails, a transfer table which is movable on said transfer table rails, and wedge blocks or shoes hinged alongside the traversing rails adjacent to the marginal transfer table rails, whereby said traversing rails may be opened or made to register with said table, substantially as described.

6. The improvements herein described comprising transfer table rails embedded in the ground, in combination with crossing track rails also embedded in the ground, a transfer table adapted to move on said transfer table rails and a pair of tapered or wedge-shaped blocks hinged upon the outer sides of said crossing track rails, normally lying beside the same but adapted to be raised and to rest upon said crossing track rails for registration with said table, substantially as described.

7. The improvements herein described comprising a plurality of transfer table rails, in combination with other rails which traverse the surface occupied by said transfer table rails, wedge shaped blocks hinged at the sides of the same and adapted to rest thereon adjacent to said surface, still other rails abutting said surface and permanently inclined adjacent thereto, and a transfer table adapted to move upon said transfer table, substantially as described.

8. The herein described improvements comprising a plurality of parallel transfer table rails laid in the ground, the intermediate rails being below the marginal rails, in combination with cross tracks comprising rails traversing the surface occupied by the transfer table rails and depressed to correspond with said intermediate rails, wedge-shaped blocks or shoes hinged adjacent to said cross track rails and adapted to rest thereon, a transfer table adapted to register with said cross track through the medium of said blocks, and a plurality of relatively elevated stub or stall tracks terminating adjacent to the marginal transfer table rails, substantially as described.

9. The improvements herein described comprising a transfer yard equipped with various through and cross and stub tracks, in combination with a plurality of transfer table rails lying between said stub tracks and



traversing said through and cross tracks, a transfer table adapted to move upon said transfer table rails, and devices attached to respective through tracks for interrupting  
 5 said through tracks and causing the same to register with the tracks upon said table when the table is moved into register therewith.

10 10. The herein described improvement comprising a plurality of transfer table rails embedded in the ground, in combination with a plurality of stub track rails resting upon the ground and having inclined stub  
 15 rails, said table comprising a plurality of suitably supported cross bearers and a plurality of continuous longitudinal members secured on said cross bearers, substantially as described.

20 11. A low, normal surface transfer table comprising pairs of wheels, in combination with cross bearers which are depressed between respective wheels, flanged channel members resting in the depressions in said  
 25 cross bearers, low rails carried by said members, and suitable members strengthening the structure against lateral strains, substantially as described.

30 12. A low, normal surface transfer table comprising a plurality of cross bearers having relatively weak or flexible middle portions, in combination with suitable rail-supporting longitudinal members secured upon said cross bearers, substantially as  
 35 described.

13. The combination with a yard surface and a transfer surface therein, of a track which crosses said surfaces and is sunk be-

low the transfer surface, and means located without the transfer surface for interrupting  
 40 said track to permit of its connection to the transfer table, said track including rails which incline downwardly toward the transfer surface for connection with the sunken  
 45 portion of said track, substantially as described.

14. The combination with a transfer area, the sides of which are undepressed, of sunken transfer tracks laid in said area, a track  
 50 which crosses said area, said track including a sunken portion within said area and a partly sunken portion without said area, and pivotally mounted inclines arranged along-  
 55 side the ends of the partly sunk rails and adapted to rest upon said rails and form connections between said rails and a transfer table, substantially as described.

15. The improvements herein described comprising a plurality of transfer table rails in combination with a plurality of other  
 60 rails traversing the surface containing said transfer table rails, all said rails being sunken in the ground, a transfer table carrying rails, means for connecting the transfer table rails  
 65 with said other rails and a plurality of stall or stub tracks having permanently inclined ends to register with the rails on the transfer table, substantially as described.

In testimony whereof, I have hereunto set my hand, this 30th day of August, 1906, in  
 70 the presence of two subscribing witnesses.

CHARLES GILBERT HAWLEY.

Witnesses:

JOHN R. LEFEVRE,  
 T. G. KNIGHT.