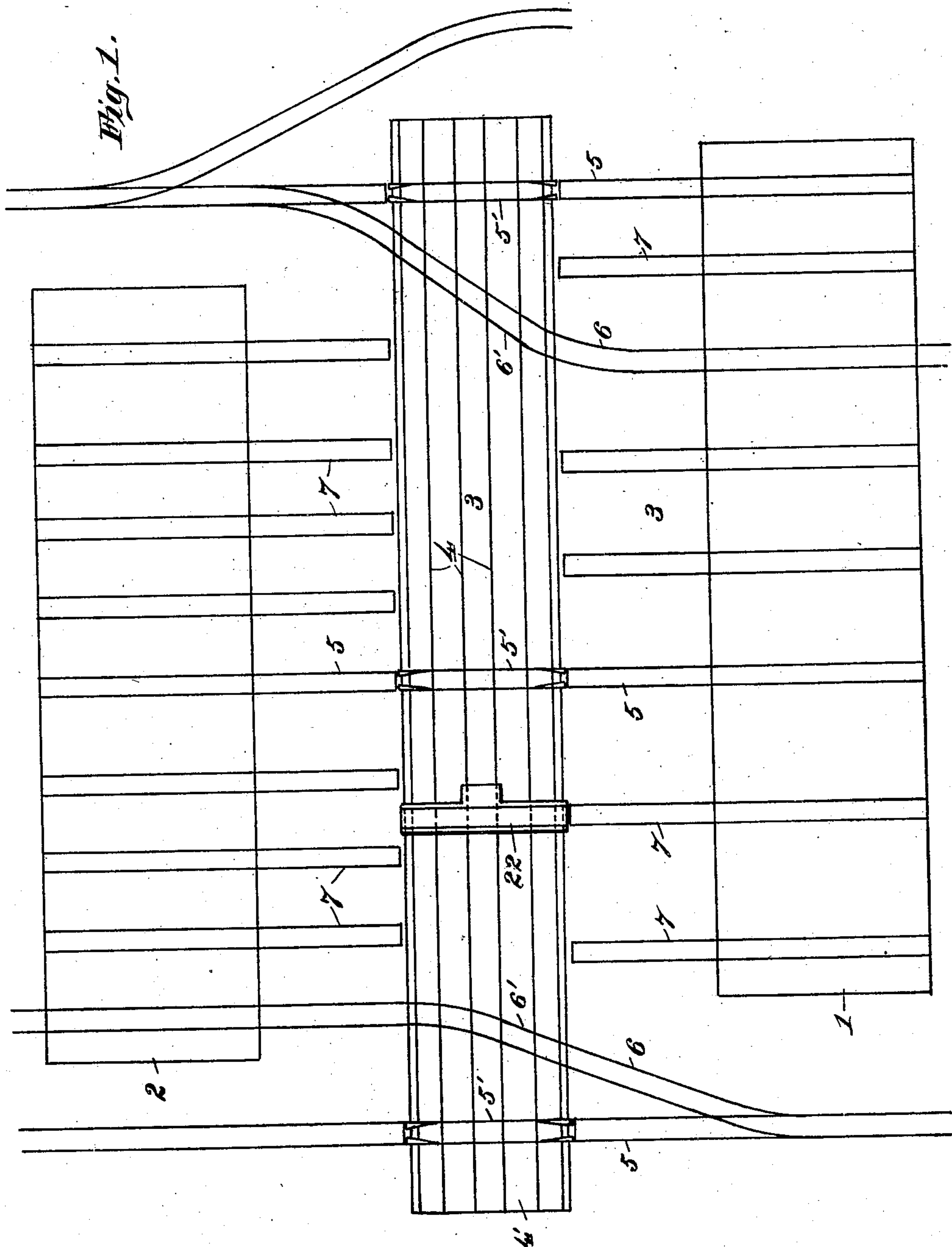


No. 889,369.

PATENTED JUNE 2, 1908.

C. G. HAWLEY.
NORMAL SURFACE TRANSFER TABLE.
APPLICATION FILED SEPT. 24, 1906.

4 SHEETS—SHEET 1.



Witnesses:

W. S. Austin
John P. Lefevre.

Inventor:

Charles Wentworth Hawley

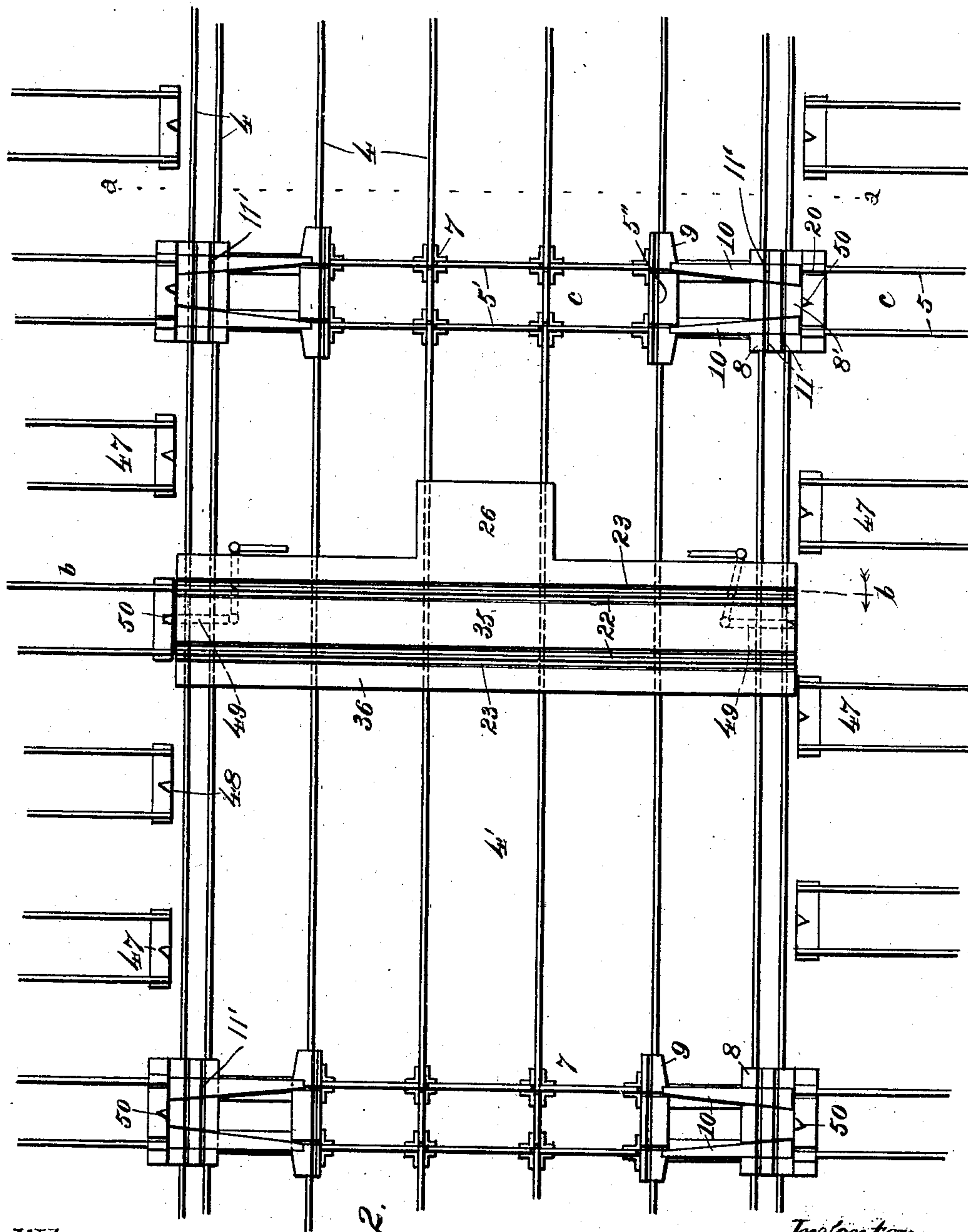
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4 SHEETS—SHEET 2.



Witnesses:

H. S. Austin
John R. Lafuze

Fig. 2.

Inventor:

C. G. Hawley

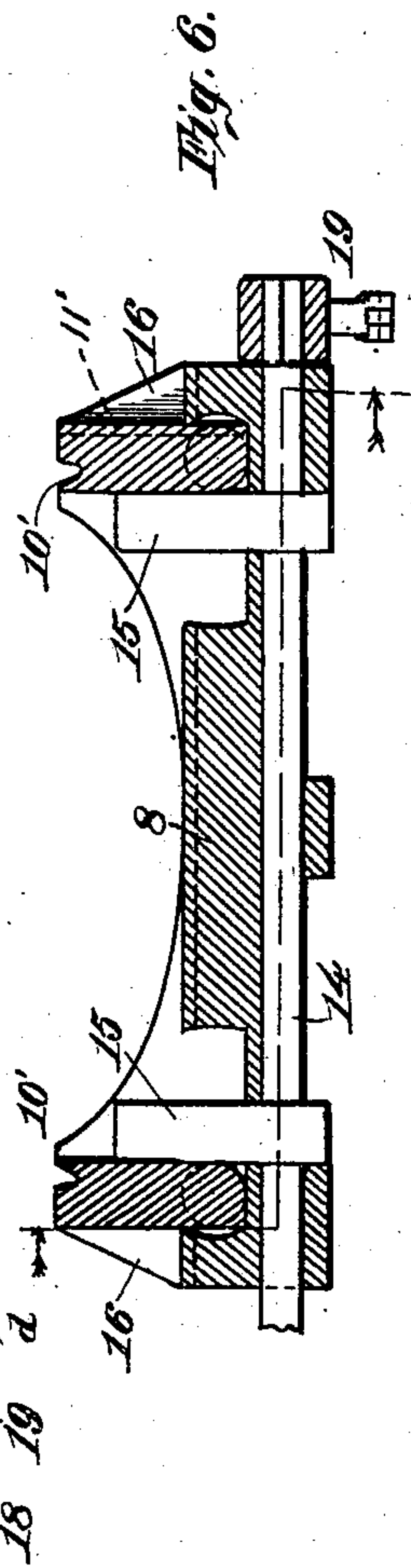
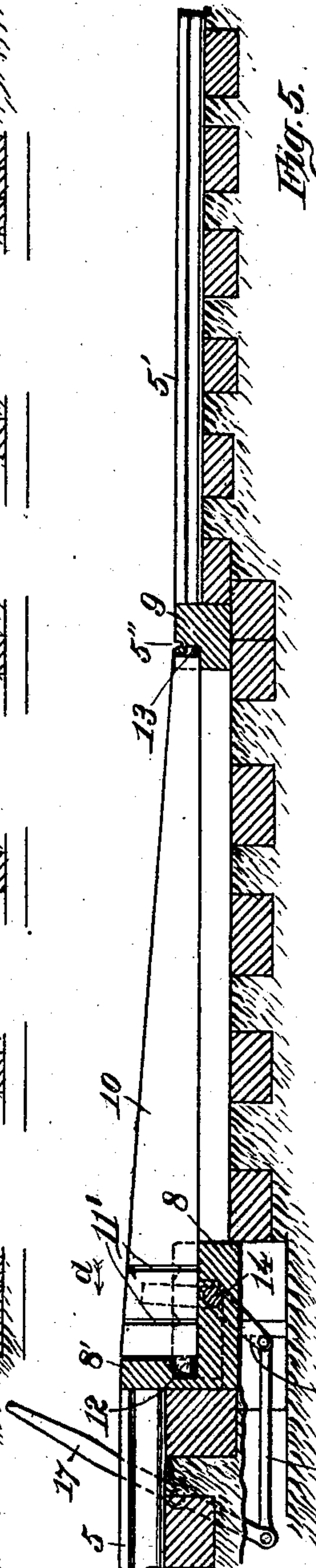
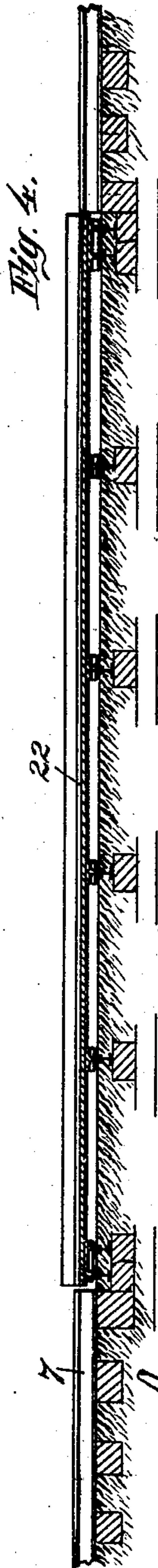
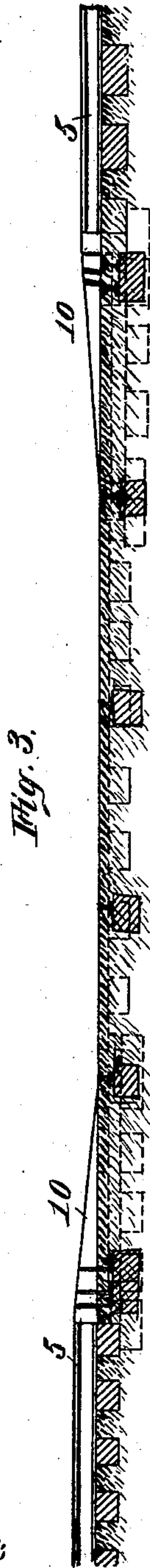
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4 SHEETS—SHEET 3.



Witnesses:

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4 SHEETS—SHEET 4.

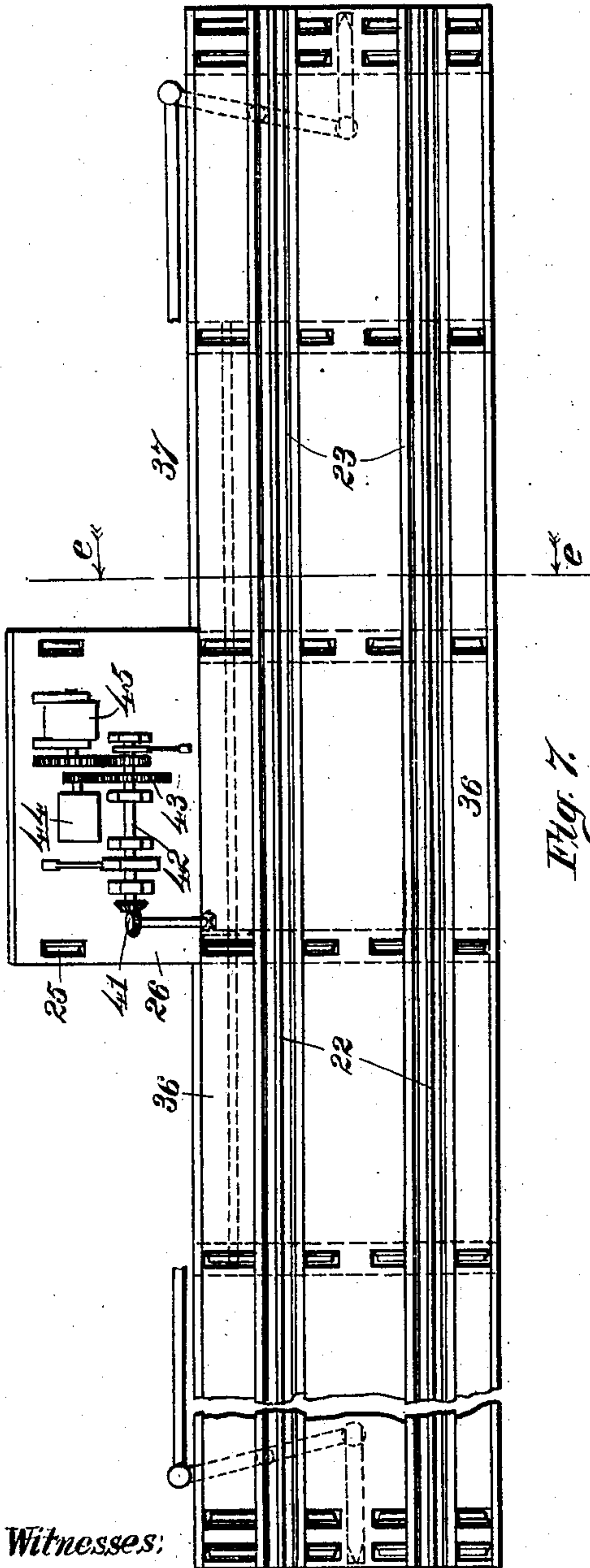


Fig. 7.

Witnesses:

H. S. Austin

John P. Lefevre

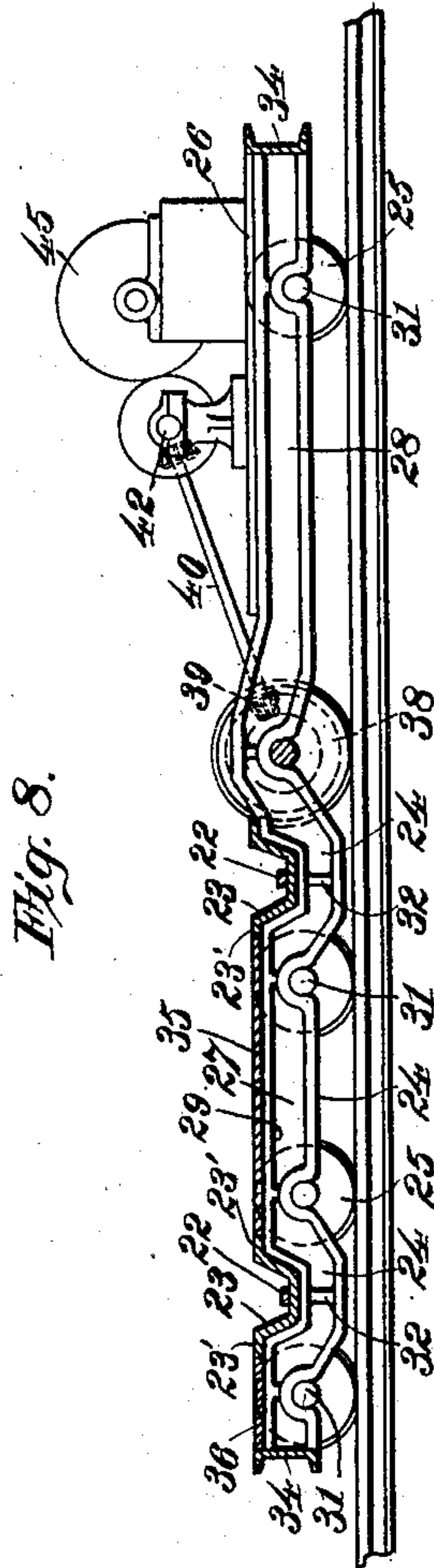


Fig. 8.

Inventor:

Charles M. Hawley

UNITED STATES PATENT OFFICE

CHARLES GILBERT HAWLEY, OF CHICAGO, ILLINOIS, ASSIGNOR TO FREDERICK A. GALE,
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NORMAL-SURFACE TRANSFER-TABLE.

No. 889,369.

Specification of Letters Patent.

Patented June 2, 1908.

Application filed September 24, 1906. Serial No. 335,887.

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, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Normal-Surface Transfer-Tables, 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.

The particular object of the invention is to provide a normal surface transfer yard, without the usual pit, and which shall be provided with or contain a suitable arrangement of diagonal and cross tracks necessary to ordinary traffic, and which shall also have a transfer table movable from end to end of the transfer yard and adapted to receive rolling stock from numerous normal level switching tracks and shop tracks or stalls, which latter terminate at the edges of the surface traversed by the table.

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 abut or terminate at the transfer surface. The term "transfer surface" as here used is intended to designate the surface which is traversed by the transfer table.

My invention may be further defined as consisting broadly, in a transfer yard which is traversed by through and switching tracks, combined with a transfer table adapted to move from end to end of said yard, numerous stall tracks, leading up to

the surface which is traversed by the transfer table, to deliver or receive rolling stock thereto or therefrom, and means for interrupting certain of said through or switching tracks to permit the passage of the transfer table and also to permit the connection of the transfer table therewith.

My invention further and particularly consists in novel cross track rail sections which are adapted for operation to interrupt said tracks at times when it is necessary to move the transfer table across said tracks or connect it therewith.

My invention also consists in a transfer table of novel construction, particularly adapted for use upon a normal transfer surface.

Further my invention consists in various details of construction and in combination of parts, all as hereinafter described and particularly pointed out in the claims.

My invention will be more readily understood by reference to the accompanying drawings forming a part of this specification, and in which;

Figure 1 is a diagrammatic plan of a section of a transfer yard constructed in accordance with my invention, showing tracks crossing the normal surface occupied by the transfer table tracks; Fig. 2 is a plan view of my normal surface transfer table and tracks together with certain alining or connecting devices included in my invention; Fig. 3 is an enlarged vertical section on line *a—*a** of Fig. 2; Fig. 4 is an enlarged vertical section on line *b—*b** of Fig. 2; Fig. 5 is an enlarged detail section on line *c—*c** of Fig. 2; showing the inclined sections in position to connect two portions of a cross-yard track; Fig. 6 is an enlarged detail section on line *d—*d** of Fig. 5; Fig. 7 is a plan view of the transfer table; and Fig. 8 is an enlarged cross section thereof, on line *e—*e** of Fig. 7.

In Fig. 1 the rectangles, 1 and 2, represent two buildings, such as two depots or sheds, or a railroad machine shop and a locomotive boiler shop. The ground or surface, 3, between the buildings is level and about midway between the buildings, and preferably parallel therewith, I arrange a plurality of transfer table tracks or rails, 4. These rails are laid upon suitable ties or sleepers and are sunk in the ground, so that their tops are substantially flush with the surface of the

yard. The rails define or outline what I designate as the transfer surface, as distinguished from the transfer yard, by which latter is meant the entire surface between
 5 and adjacent to the buildings. The transfer surface is as long or longer than the buildings and at its ends may be traversed by through or switching tracks 5—5. The end
 10 or intermediate portions of the transfer surface may likewise be traversed by diagonal incoming or outgoing switching tracks, 6. The through or switching tracks, 5 and 6, that extend across the transfer surface, 4, comprise end sections, 5 and 6, respectively,
 15 outside of the transfer surface, and intermediate sections, 5' or 6', are sunk in the ground with their tops in the plane of the tops of rails, 4. The end sections of the tracks 5 may have their bases flush with the normal
 20 surface of the yard, that is above the ground. The end sections, 6, are inclined to join the intermediate parts, 6'. A plurality of stub tracks or stall tracks, 7, are laid from the buildings, 1 and 2, and terminate at the edges
 25 of the transfer surface, 4. These tracks are laid upon the ground, the ties only being sunk therein.

It is necessary to lay the intermediate track sections, 5' and 6', at the same level as
 30 the transfer tracks, 4, in order to avoid leaving gaps in said track sections. Therefore, said intermediate track sections will be at a lower level than the yard tracks.

Any through or switching track that need
 35 not be connected to the transfer table 35, is laid continuously, as indicated by tracks, 6, in Fig. 1. But each through or switching track that is to be served by the transfer table, I provide with certain movable track
 40 sections, located within the transfer surface, and capable of interrupting the through or switching tracks to permit them to be connected to the transfer table. The track-interrupting devices hold the tracks normally
 45 closed for traffic, and are only displaced to permit the transfer table to pass, or stop, thereover. As shown in Fig. 2, said devices are mounted on metal blocks, 8 and 9; the former being positioned within the transfer
 50 surface against the end of the track section, 5, with its upper surface flush with the transfer surface, as shown in dotted lines in Fig. 5. This block is preferably wider than the track, 5, in the direction of its own length, for the
 55 purpose hereinafter made clear. As the block, 8, intersects one or more of the transfer table tracks, 4, the latter are cut away to receive it, as shown. The other block, 9, may or may not be set into a transfer table
 60 rail, but is positioned several feet inwardly from the block, 8.

The movable track sections, 10, are in the form of tapered blocks which, when normally disposed, connect the end track section, 5, to
 65 the intermediate track section, 5', being down-

wardly inclined from the former to the latter, and their inclined surfaces being provided with wheel-flange grooves, 10'. On one side, which may become the upper side, they are also provided with wheel flange
 70 grooves, 11', that register with flange grooves, 11, formed in the top of the block, 8; said grooves registering with the outside or marginal transfer rails, 4. Each of said movable
 75 track sections, 10, is provided upon its ends with pivot studs or trunnions, 12 and 13, mounted in bearings in the blocks, 8 and 9, respectively. Through the block, 8, at the larger ends of said arms, passes a rock-shaft,
 80 14, on which are fixed two lifting arms, 15, that respectively engage the track sections, 10, and are so positioned that when laid flat they permit said sections also to lie flat upon them, and when raised (by turning shaft 14)
 85 will turn up the sections, 10, to operative position. When thus turned, the arms, 15, lock the track sections, 10, against stops, 16, secured on the block, 8; thus said track sections are made immovable until the rock
 90 arms, 15, are lowered. Rock-shaft, 14, is actuated by a lever, 17, through the medium of a rod, 18, and an arm, 19, fixed on said shaft.

As shown in Fig. 6, the metal block, 8, is formed with an upwardly extending portion,
 95 8', that fits against the end of the yard track, 5, and is provided with wheel-flange grooves, 20, registering with said track, and with the longitudinal flange grooves, 10', of the movable sections, 10. The block, 8, is provided
 100 with recesses that receive the track sections, 10, when the latter are in the position shown in Fig. 2; thus the passage of the transfer table wheels over the block, 8, and members,
 105 10, will be smooth and unbroken when the latter are down. The block, 9, that supports the inner ends of the movable track sections, 10, is provided with wheel-flange grooves, 5'', that register with the track section, 5', and
 110 with the corresponding grooves, 10', of said movable sections.

When the transfer table 35 is to be moved across, or connected to, one of the through or switching tracks, the movable track sections,
 115 10, of that track are thrown down by an operator, so that they will permit the transfer rails to register with the track section, 5, or permit the transfer table to pass over them, as the case may be. It will be evident that
 120 rolling stock may be transferred between any track, 5 or 7, upon the transfer table, regardless of the fact that some of said tracks extend across the transfer surface. The transfer table 35 is preferably constructed as
 125 shown in the drawings, whereby it will combine ample strength with cheapness of construction. The table comprises a plurality of continuous transverse cast-metal cross-bearers, 24, carrying-wheels, 25, and a pair
 130 of longitudinal channel stringers, 23, which

hold the rails, 22. The table also comprises an extended platform, 26, supported by two elongated cross-bearers, 28, and by track-wheels, 25. The cross-bearers comprise depressed load-bearing portions, 24, and connecting portions, 27; those supporting the platform, 26, comprise also the extensions, 28.

29 and 30 represent longitudinal reinforcing ribs on the cross-bearers, the lower of said ribs being recessed as shown to receive the axle-ends, 31, while permitting the cross-bearers to be lifted off the wheels. The depressed load-bearing portions, 24, are provided with strengthening ribs, 32. Each intermediate cross-bearer is supported by a single row of wheels, but the bearers at the ends of the table are preferably mounted on two rows of wheels, arranged in pairs and connected by short axles. All the cross-bearers are slotted, as shown, to permit the use of wheels as large as practicable.

The channel stringers, 23, are fitted in the depressed parts, 24, of the cross-bearers and are provided with lateral flanges, 23', which are riveted to flanges, 29, of the cross-bearers. The ends of the cross-bearers are connected together longitudinally of the table by riveted channel-bars, 34. Thus the stringers, the cross-bearers, and these bars, 34, together form a very strong and rigid structure. The spaces between the two stringers, 23, are covered over by a floor plate, 35', and the spaces alongside the stringers are covered by plates, 36. Thus the table presents an almost continuous surface which is a convenience to operators and other workmen.

The preferred table-driving mechanism is constructed as follows: One of the longitudinal rows of wheels is mounted on a single extended shaft, 37, instead of upon separate axles. On said shaft is keyed a bevel gear wheel, 38, and that it may be as large as practicable, the wheels upon the shaft are larger than the other wheels. Gear, 38, is driven by a bevel pinion, 39, on the lower end of an inclined shaft, 40, which is driven through gears, 41, shaft, 42, and gears, 43, by a motor, or engine, 44. The motor, 44, is also geared to a winding drum, 45, to which a draft cable (not shown) may be attached, for use in drawing on cars or locomotives in the absence of a live locomotive as a pusher.

Any suitable device may be employed for causing the transfer table to come to a stop in accurate alinement with a track, and for positively holding it in such position. The table holding device which is shown herein comprises bolts carried by the table and bolt-engaging parts positioned at the respective tracks. The stub or stall tracks, 7, are provided at their ends abutting the transfer surface with heavy wooden or metal ties, 47, provided with bolt-sockets, 48. The bolts, 49, carried by the transfer table are suitably

mounted and operated, the details of this construction being immaterial. As the switching or through tracks, 5, are provided with the metal blocks, 8, the bolt-sockets, 50, are formed in said blocks, as shown in Fig. 2.

As various modifications of my invention will readily suggest themselves to anyone skilled in the art, I do not limit my invention to the specific form herein described.

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

1. The combination, with a yard and a plurality of yard tracks, of a normal transfer surface which is level with the adjacent surface of the yard; a transfer table arranged to travel over said normal surface, and a track supported by said transfer table, said track being held at the same elevation as the yard tracks; substantially as described.

2. The combination, with a yard and a plurality of yard tracks, of a transfer surface intersecting said tracks and level with the adjacent surface of the yard; transfer tracks laid beneath said transfer surface; and a transfer table mounted on said transfer tracks and carrying rails which will register with any of said yard tracks; substantially as described.

3. The combination, with a yard and a plurality of yard tracks, of a rectangular transfer surface intersecting said tracks and neither higher nor lower than the surrounding surface; sunken transfer tracks extending at an angle with said yard tracks; a transfer table mounted on said transfer tracks; and a pair of rails held by the transfer table, said rails being level with the yard tracks served by it; substantially as described.

4. The combination, with a yard surface and a normal transfer surface therein, of sunken transfer table tracks, a normally closed through or switching track extending across the transfer surface and sunken therein, said track including end sections lying upon or above the normal surface; and means, located within the transfer surface, for interrupting the through or switching track to permit the transfer table to pass thereover or be connected thereto; substantially as described.

5. The combination, with a yard surface and a normal transfer surface therein, of sunken transfer table tracks, a normally closed through or switching track extending across the transfer surface and sunken therein; said track including end sections lying upon or above the normal surface; and movable track members, located within the transfer surface, for interrupting the through or switching track to permit the transfer table to pass thereover or be connected thereto; substantially as described.

6. The combination, with a yard surface and a normal transfer surface therein, of sunken transfer table tracks, a normally closed through or switching track extending
5 across the transfer surface and sunken therein, said track including end sections lying upon or above the normal surface; and end-pivoted track members, located within the transfer surface, for interrupting the through
10 or switching track to permit the transfer table to pass thereover or be connected thereto; substantially as described.

7. The combination, with a yard surface and a normal transfer surface therein, of
15 sunken transfer table tracks, a normally closed through or switching track extending across the transfer surface and sunken therein, said track including end sections lying upon or above the normal surface; and movable
20 track members having inclined surfaces normally connecting the tops of the through or switching track sections; substantially as described.

8. The combination, with a yard surface
25 and a normal transfer surface therein, said track including end sections lying upon or above the normal surface; and rockable track-members, located within the transfer surface, normally forming parts of the through
30 or switching track, and when rocked, completing an intersecting transfer-table track rail; substantially as described.

9. The combination, with a yard surface and a normal transfer surface therein, of
35 sunken transfer table tracks, a normally closed through or switching track extending across the transfer surface and sunken therein, said track including end sections lying upon or above the normal surface; a block
40 that intersects one of the transfer table track rails, said block having wheel-flange grooves to carry the transfer table wheels; and movable track-members supported by
45 said block and normally closing the through or switching track, but when depressed, interrupting said track to permit the transfer table to pass over or be connected to it; substantially as described.

10. The combination, with a yard surface
50 and a normal transfer surface therein, of sunken transfer table tracks, a normally closed through or switching track extending across the transfer surface and sunken therein, said track including end sections lying
55 upon or above the normal surface; and a metal block having a high portion which abuts the end of one of said end sections at the same height thereas, and having a base portion; and rockable track-members supported
60 by said block, normally closing said through or switching track, and when depressed interrupting said track to permit the transfer table to pass over or be connected to it; substantially as described.

65 11. A transfer table comprising the table

proper constructed with a pair of longitudinal rail-holding depressions and suitable trucks; substantially as described.

12. A transfer table comprising the table proper constructed with a pair of longitudinal rail-holding depressions, a pair of rails
70 forming a track section laid in said depressions, said rails being less deep than the standard rail section, and suitable trucks for said table; substantially as described. 75

13. The combination with a plurality of yard tracks, of a normal transfer surface intersecting said tracks, transfer tracks laid upon said normal surface transfer tracks,
80 cross-bearers running on said transfer tracks, a transfer table mounted on said bearers and provided with a pair of longitudinal rail-holding depressions, and a pair of rails laid in said depressions and forming a track section,
85 the top of said track section being even with the tops of said yard tracks; substantially as described.

14. A transfer table comprising wheels, trucks composed of transversely extending continuous bars, provided with integral axle
90 boxes, in combination with the table proper which is formed with parallel longitudinal depressions, and rails laid in said depressions; said rails forming a track section or sections; substantially as described. 95

15. The combination with a broken through track and an intersecting broken transfer rail, of a block forming a bridge across the broken ends of the transfer rail
100 and a pair of bridge-blocks pivotally attached to said block and arranged to permit the passage of the transfer table across said through track or to complete said through track, substantially as described.

16. The combination with a broken
105 through track and a broken intersecting transfer rail, said rail being on a lower level than said track, of a casting forming a bridge across the broken ends of the transfer rail, and a pair of rocking bridge-blocks attached
110 to said casting, said bridge-blocks being capable of assuming two positions in one of which they complete said through track and in the other of which they permit the passage of a transfer table across said track, and fill
115 the breaks in said transfer rail, substantially as described.

17. The combination with a broken through track and a broken, intersecting, relatively depressed transfer rail, of a casting
120 arranged across the broken portion of said transfer rail, said casting having recesses in its upper surface, a pair of bridge-blocks pivotally mounted at their ends and arranged to complete said through track when in one
125 position, and being depressible from that position into said recesses to permit a transfer table to pass over or be connected to said through track, substantially as described.

18. The improvements herein described, 130

comprising a plurality of transfer table rails, in combination with a track or tracks traversing the surface containing said rails, a table adapted to be moved upon said rails, a plurality of stub tracks laid upon said surface and terminating adjacent to the marginal transfer table rails for use with said table, and means interposed in the tracks which traverse said surface for removing the same from the path of the table to permit the passage of the latter and to permit the use of the table with the traversing tracks, substantially as described.

19. The improvements herein described comprising a plurality of transfer table rails embedded in the ground, in combination with a track crossing the surface containing said rails, the portions of said track adjacent to said surface being laid upon the ground and the portion thereof which traverses said surface being embedded in the ground, and containing movable sections for establishing the through track, a transfer table to operate upon said transfer table rails, means for operating said movable sections to permit the passage of said table, and a plurality of stall tracks, substantially as described.

20. The improvements herein described comprising a plurality of transfer table rails embedded in the ground, in combination with a transfer table to operate thereon, a plurality of stall tracks terminating adjacent to the marginal transfer table rails,

said stall tracks being placed upon the ground and hence above said transfer table rails to register with said transfer table, a cross track having end portions corresponding to said stall tracks in elevation and having an intermediate portion traversing the transfer table rails, and inclined blocks or shoes interposed in said cross track in the path of said table, and means for operating said block, substantially as described.

21. The improvements herein described comprising various through and cross and stub tracks, in combination with a plurality of transfer table tracks lying between said stub tracks and traversing said through and cross tracks, a transfer table movable on said transfer table rails, the portions of said through and cross tracks traversed by the transfer table rails being arranged substantially in the plane thereof, the other portions of said track and said stub tracks being arranged above said plane and inclined rotatable track completing blocks interposed in said through and cross tracks and operable substantially as described.

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

CHARLES GILBERT HAWLEY.

Witnesses:

JOHN R. LEFEVRE,
T. G. KNIGHT.