

No. 688,277.

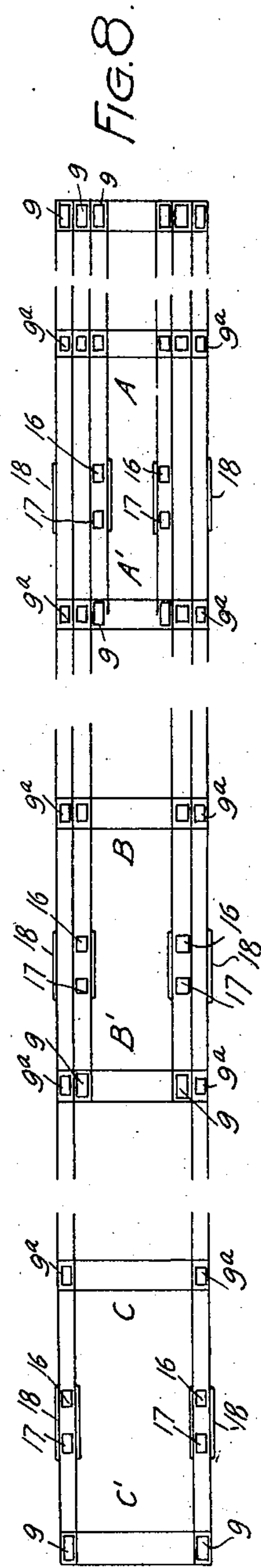
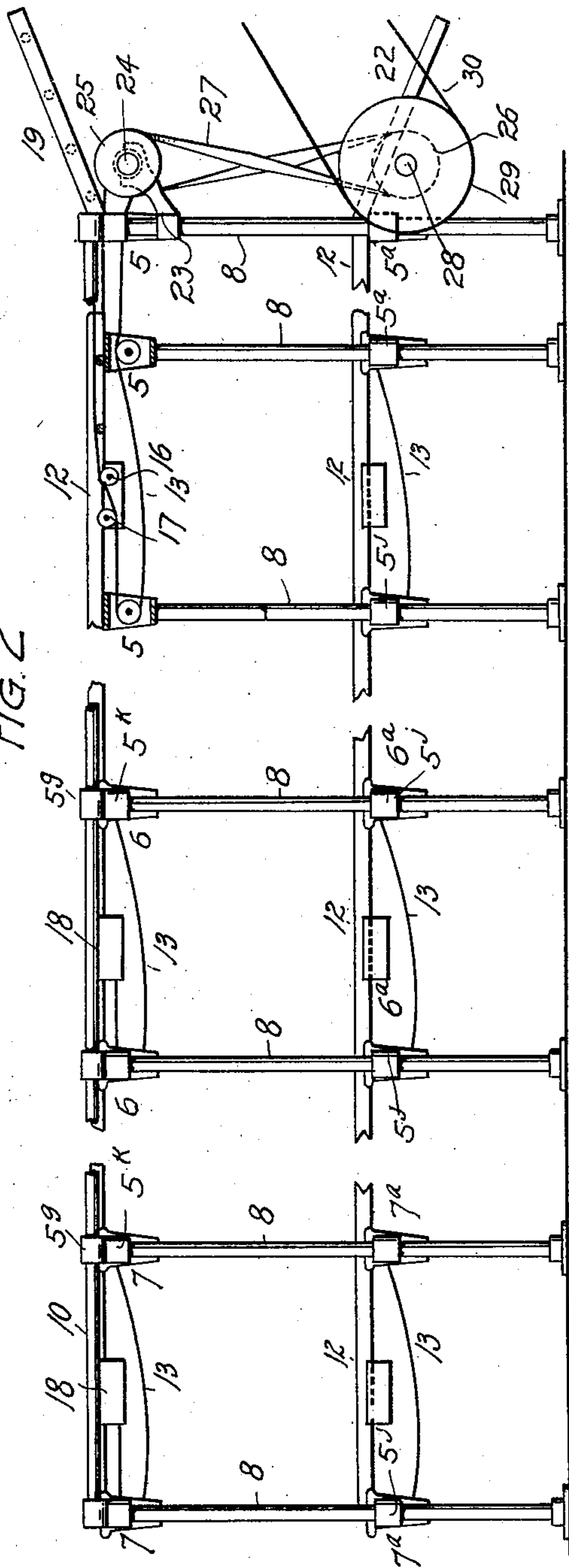
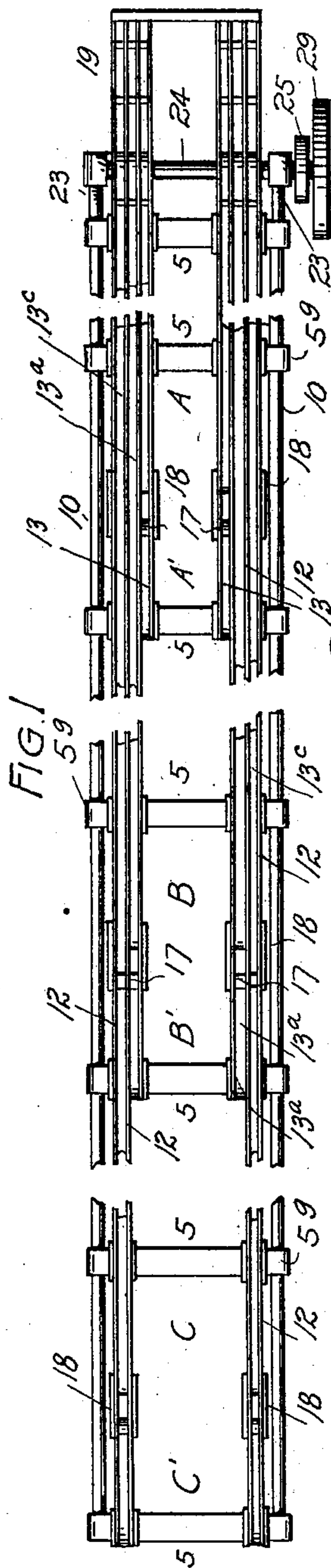
Patented Dec. 3, 1901.

A. L. WILLOUGHBY.
DINING ROOM TRAMWAY.

(Application filed Apr. 6, 1901.)

(No Model.)

2 Sheets—Sheet 1.



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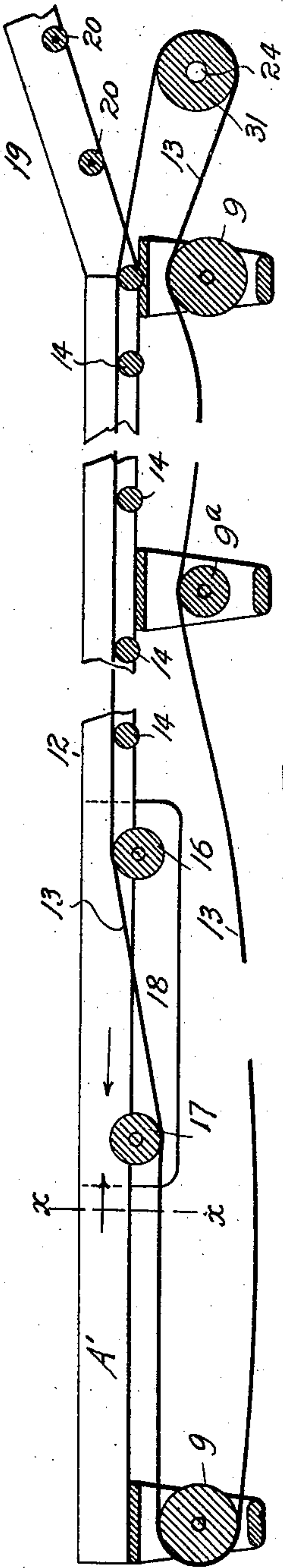


FIG. 3

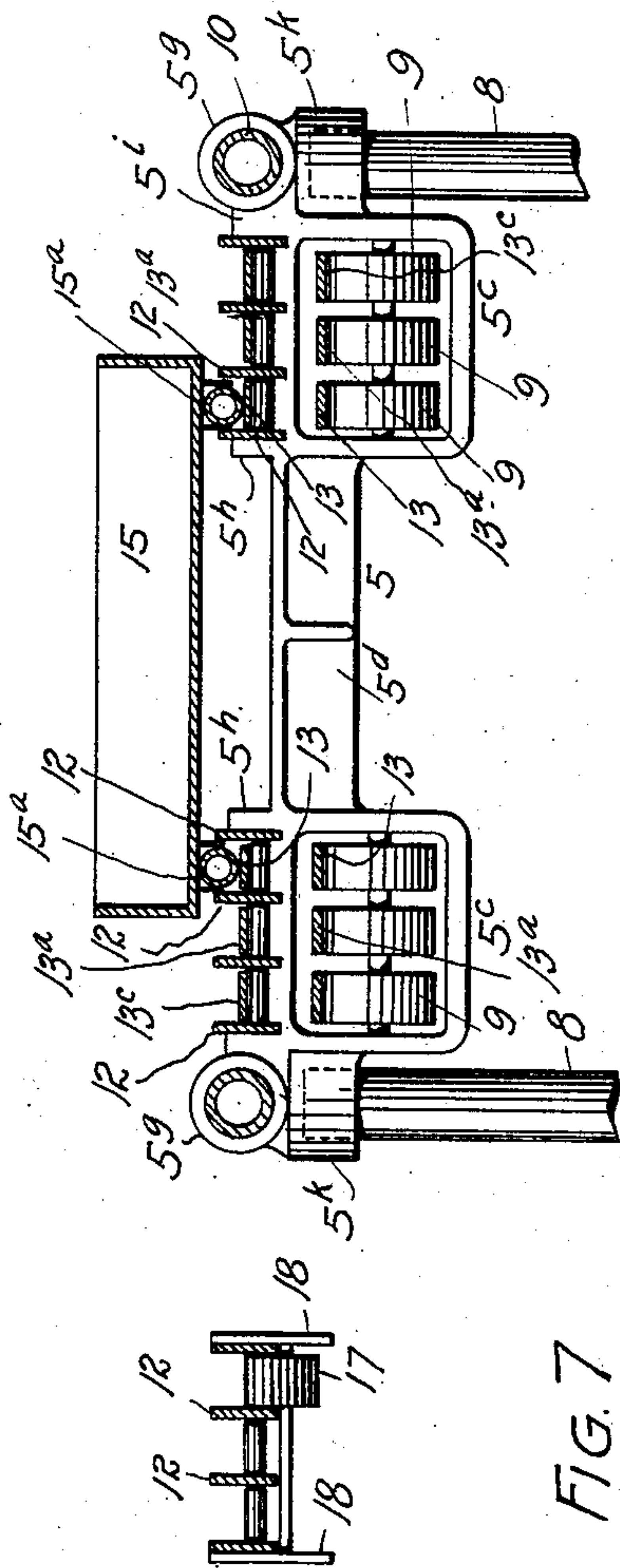


FIG. 4

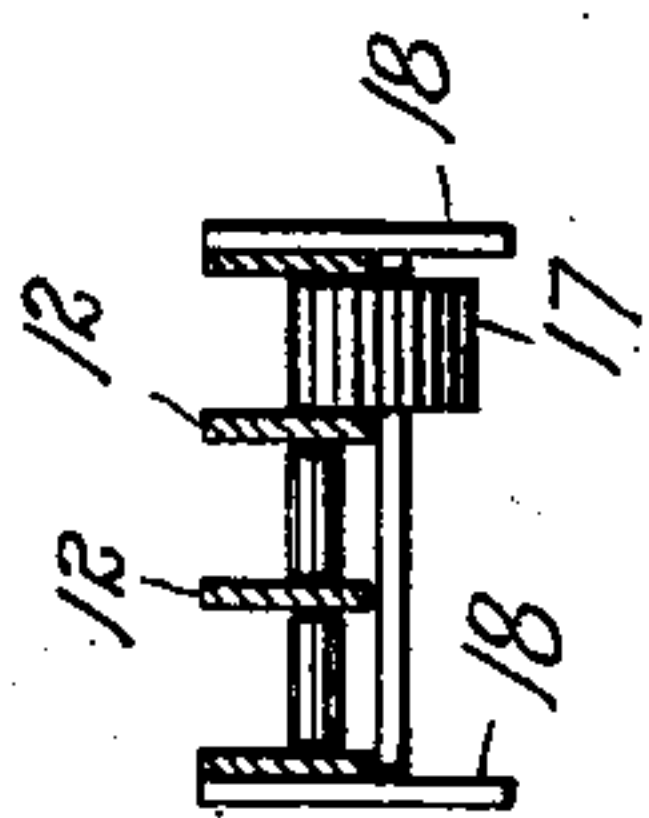


FIG. 5

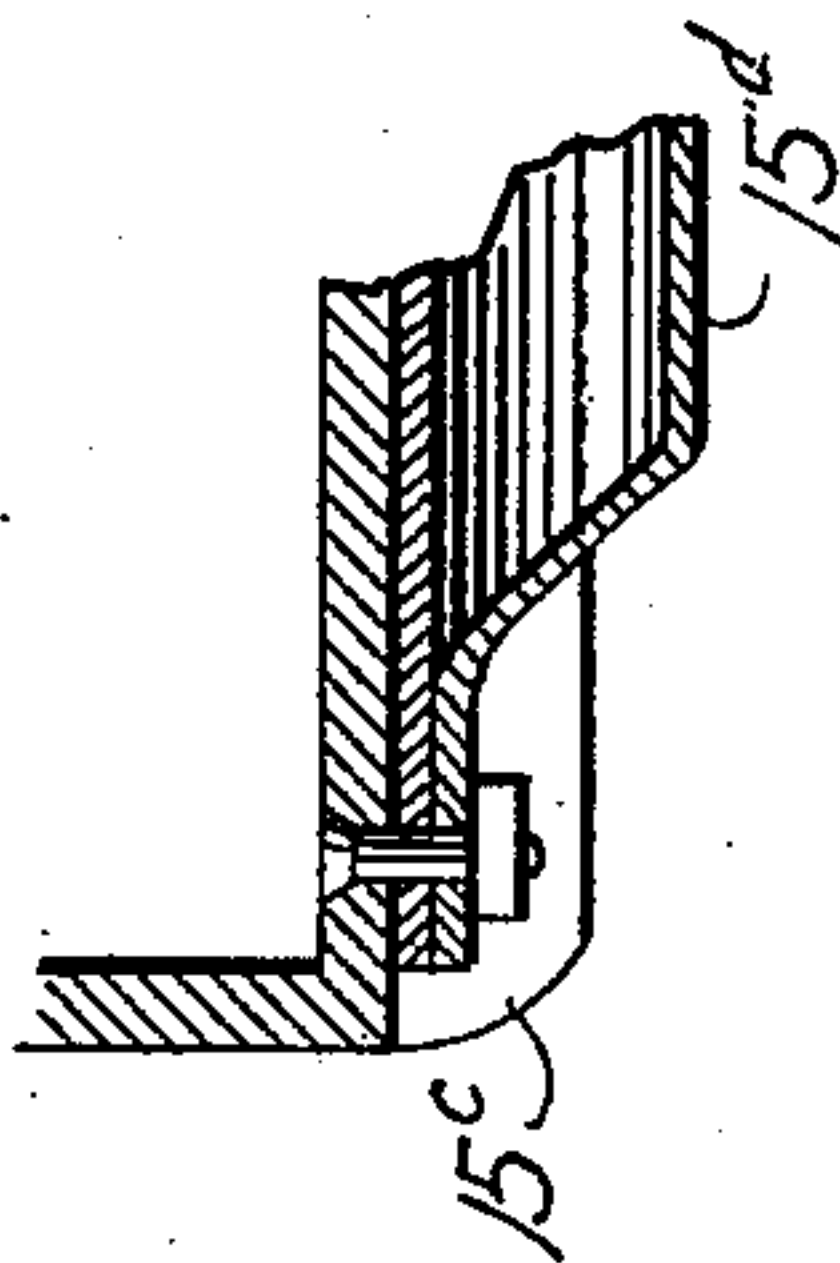
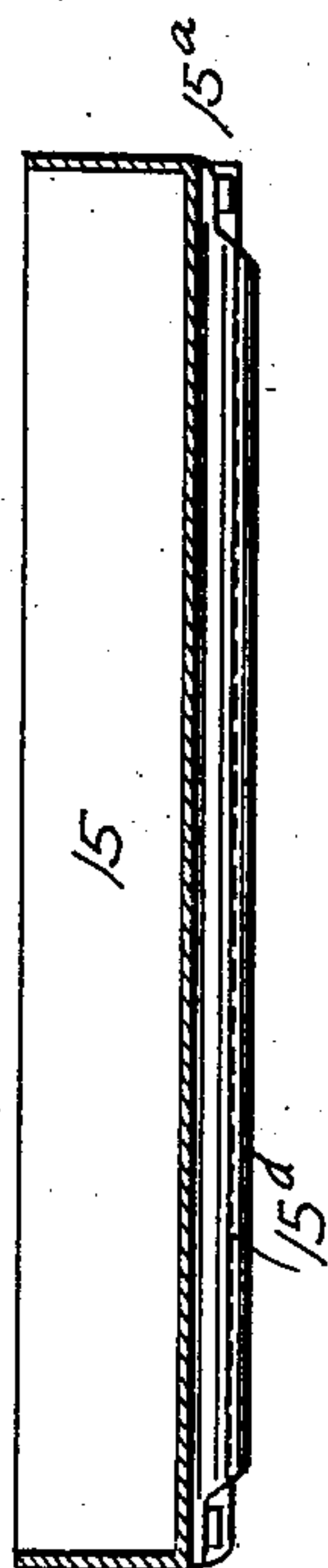


FIG. 6



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DINING-ROOM TRAMWAY.

SPECIFICATION forming part of Letters Patent No. 688,277, dated December 3, 1901.

Application filed April 6, 1901. Serial No. 54,728. (No model.)

To all whom it may concern:

Be it known that I, AMANDA L. WILLOUGHBY, a citizen of the United States of America, residing at Denver, in the county of Arapahoe and State of Colorado, have invented certain new and useful Improvements in Dining-Room Tramways; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in dining-room tramways adapted for use in hotels, restaurants, and eating-houses of all kinds.

My improved tramway is intended to carry the trays back and forth in a dining-room. The loaded trays are carried from the kitchen to the various points in the dining-room where they are needed, and the trays containing empty dishes are returned from the various points in the dining-room to the kitchen, thus obviating the necessity of employing persons to perform this labor.

My object is to provide an apparatus of this class which shall be simple in construction, economical in cost, reliable, durable, and efficient in use; and to these ends the invention consists of the features, arrangements, and combinations hereinafter described and claimed, all of which will be fully understood by reference to the accompanying drawings, in which is illustrated an embodiment thereof.

In the drawings, Figure 1 is a top or plan view of my improved apparatus, partly broken away. Fig. 2 is a side elevation of the same, partly in section. Fig. 3 is a vertical longitudinal section taken through the upper part of the apparatus, showing a single section or portion of the tramway, the parts being shown on a larger scale. Fig. 4 is a cross-section taken through the upper part of the apparatus, the supporting standards or posts being broken away above the lower part of the structure. Fig. 5 is a section taken on the line $x-x$, Fig. 3. Fig. 6 is a section taken through one of the trays. Fig. 7 is a fragmentary section of the same shown on a larger

scale. Fig. 8 is a diagrammatic plan view of the apparatus. This view is intended to show the location and relative size of the various rollers employed in connection with the upper or outgoing portion of the tramway. A similar view of the lower or tray-returning portion of the tramway would be substantially the same.

The same reference characters indicate the same parts in all the views.

The framework of my improved structure includes a series of yokes 5 5^a, 6 6^a, and 7 7^a, according as they belong to the different sections or parts of the tramway. In the drawings three sections (designated, respectively, by the reference characters A, B, and C) are shown. The yokes of section A are designated 5, those of section B are designated 6, while those of section C are designated 7. There may be any desired number of sections, according to the number of stations or points where trays are to be stopped, with which the tramway is provided. The yokes 5, 6, and 7 are upper yokes belonging to the outgoing portion of the tramway, while the yokes 5^a, 6^a, and 7^a are corresponding lower yokes belonging to the tray-returning portion of the tramway. Each upper yoke is located directly above its corresponding lower yoke. Each pair of upper and lower yokes is mounted on two vertical posts or standards 8, which may be composed of gas-pipe or other suitable material. The yokes 5, 6, and 7 differ only slightly in construction, and the yokes 5^a, 6^a, and 7^a are substantially of the same construction as their corresponding upper yokes. I will first describe a yoke 5 (see Fig. 4) and then point out the differences between it and the other yokes.

Each yoke 5 is provided on each side with a socket 5^k, into which the upper extremity of a post or standard 8 is fitted. Between the two posts 8 are two depending yoke parts 5^c, connected by an intermediate bridge part 5^d. In each part 5^c are journaled three rollers 9. The parts 5^c form supports or keepers for these rollers. Above each socket 5^k is located a horizontal sleeve 5^e, through which passes a horizontal frame-bar 10, which is preferably tubular or composed of gas-pipe. At the extremities of the bridge part 5^d are lo-

cated two vertical flanges 5^h, while adjacent each sleeve 5^s is located a lug 5^l, forming a connection between the sleeve 5^s and the body of the part 5^c and having a vertical inner wall.

- 5 Between the vertical wall of the lug 5^l and the flange 5^h of each part 5^c are located four metal strips 12, which are set into grooves formed in the top of each part 5^c of the yoke or fastened thereto in any other suitable manner.
- 10 These strips 12 are separated sufficiently to form runways for carrier-belts 13, 13^a, and 13^c, which are supported by pins 14, whose extremities are supported by the strips. These belts carry the trays 15. The only difference between the belts is in regard to their
- 15 length. The two inner belts, which are designated 13, carry the smaller trays, or those which travel only the length of the first section and stop at the first station, or that designated A'. The two middle belts 13^a, one
- 20 on each side, carry the trays next larger in size and stop at the second station, (designated B',) while the two outermost belts 13^c carry the largest trays, which stop at the third station, (designated C'.) These belts are all end-
- 25 less. The belts 13 at the end of section A remote from the front extremity of the tramway pass down around the two innermost rollers 9 of one of the yokes 5 and thence to-
- 30 ward the front end of the structure, passing above all the rollers of the intermediate yokes lying in their path. These rollers form the support for the lower part of the traveling belt.
- 35 Attention is called to the fact that in Fig. 4 the yoke located at the forward extremity of the tramway, or that farther to the right in Figs. 1, 2, 3, and 8, is shown. The rollers of this yoke, which are designated 9, are of the
- 40 larger size. This is also true of one pair of rollers of the terminal yoke of each section. For instance, the two innermost rollers of the rear terminal yoke of section A (see Fig. 8) are the large rollers and are designated 9.
- 45 This is also true of the inner pair of rollers of the corresponding yoke of section B and of the two rollers of the rear terminal yoke of section C. The other yoke-rollers are of smaller size and designated by the reference
- 50 character 9^a.

- The yokes 6 are located beyond the station A' and are exactly like the yokes 5, already described, except that they have only six
- 55 strips 12, forming four runways for the belts 13^a and 13^c. Hence these yokes 6 have only four rollers. The belts 13^a pass down under the two rollers 9 of the yoke located at the rear end of the section B and thence back to the front end of the tramway, passing above
- 60 all the rollers in their path mounted on the yokes 5 and 6. Beyond the station B' the yokes 7 are provided with only two strips 12 on each side, forming runways for the outermost belts 13^c. These yokes 7 have only
- 65 four rollers each, and when the carrier-belts 13^c reach the terminus of the section C they pass down around the rollers 9 of the termi-

nal yoke 7 and thence forward above the outermost rollers lying in the path of all the yokes 5, 6, and 7.

The tramway may of course be made of any desired length and may have any number of stations or sections. In the drawings three sections are shown. It is evident that if another section were added the yokes of the sections A B C would each be provided with two additional rollers and two additional runways or channels for the extra belts which would then be required. The trays 15 rest on the belts and are carried along thereby, as heretofore described. These trays may be made of any desired size consistent with convenience. The bottom of each tray is provided with runners or supports 15^a, which project into the runways to engagement with the belts. As shown in the drawings, each of these runners consists of two separated flanges 15^c, attached to the bottom of the tray, and a rubber tube 15^d, attached to the bottom of the tray between the flanges and projecting below the flanges to engagement with the belt. This construction provides the tray with a yielding support; but it must be understood that any other suitable construction of tray adapted to rest upon the belts and be carried thereby may be employed. Provision must be made for stopping the trays at the various stations, and this construction will now be described.

At the end of each section the supporting-pins 14 are absent, and two pairs of rollers 16 and 17 are employed. The portions of the tramway where these rollers are located are called "stations." At each of these stations each belt 13, 13^a, or 13^c, as the case may be, passes over the roller 16 and down under the roller 17 and thence around a roller 9 of the terminal yoke of the section. When the belt passes downward beneath the roller 17, it leaves the tray, and the latter stops at the station and may be removed by the person in attendance. The upper belts of the tramway are intended to carry the trays containing the filled dishes, while the lower belts are for carrying the trays containing the empty dishes back to the kitchen. The returning trays travel the entire distance from the points where they are set upon the belts to the front end of the structure. The lower part of the tramway is provided with stations and rollers 16 and 17, the same as the upper portion. The trays, instead of being landed at these stations, are set in position at the station and remain still until they are moved out upon the traveling belts as the latter emerge from beneath. At each station the strips 12 are provided with guide-plates 18, which retain the belt in place after passing below the spacing-strips 12. At the front end of the tramway a sort of chute 19 is located. This chute is provided with channels registering with the belt-runways and containing rollers 20, which facilitate the movement of the trays to the carrier-belts. This chute is highest at its forward extremity,

or that remote from the body of the tramway, and its inclination is such as to cause the trays to move to position on the belts. At the forward extremity of the lower or tray-

5 returning portion of the tramway a similar chute 22 is located and downwardly inclined from the tramway extremity to receive the trays as they leave the belts on the return trip and discharge them at a convenient point.

10 The forward extremity of the tramway is provided with a bracket 23, in which is journaled a shaft 24, upon which is made fast a pulley 25, connected with a lower pulley 26 by a crossed belt 27. The pulley 26 is fast

15 on a shaft 28, which carries a larger pulley 29, operated by a belt 30. The shafts 24 and 28 both carry pulleys 31. These pulleys 31 actuate the carrier-belts in opposite directions, since the belt 27 is crossed, as before

20 stated.

From the foregoing description the operation of my improved tramway, as well as its use, will be readily understood. Assuming that the upper and lower carrier-belts are in

25 motion and moving in opposite directions, trays containing the filled dishes are placed on the chute 19, by which they are conducted to the carrier-belts. The smallest-sized trays engage the belts 13 and are landed at the first

30 station A', since the belt engaging the rollers 16 and 17 passes beneath and leaves the tray, which may then be removed from the belt. The next larger tray will engage the belts 13^a and stop at the second station B', while the

35 largest tray will engage the belts 13^c and stop at the last station. After the trays containing the filled dishes have been unloaded they are filled with empty dishes and placed upon the belts of the lower or returning part of the

40 tramway and carried directly to the discharge-chute 22.

Attention is called to the fact that the lower yokes 5^a, 6^a, and 7^a of the tramway are provided with vertical sleeves 5^j, through which

45 the posts 8 pass, while the upper extremities of these posts engage sockets 5^k of the yokes.

It must be understood that my invention does not require that the trays intended to stop at the different stations be made of different sizes, though in the specification they are referred to for convenience as of different size. It is evident that the trays may all be made of the same size, but with runners or bottom projections which engage the belts,

50 properly spaced or separated to engage the different pairs of belts 13, 13^a, and 13^c, respectively.

Having thus described my invention, what I claim is—

60 1. In a dining-room tramway the combination with dish trays or receptacles and a supporting structure, of carrying means upon which the trays rest, the said means being arranged to pass below its normal tray-supporting plane at a station or point where the trays

65 are intended to stop.

2. In a dining-room tramway, the combina-

tion with a supporting structure and a tray or dish-receptacle, of an endless carrier upon which the tray rests, the said carrier being 70 arranged to pass below its normal tray-supporting plane at a station or point where the tray is intended to stop.

3. In a dining-room tramway, the combination with a supporting structure and trays or 75 dish-receptacles, of endless carrier-belts, upon which the trays rest, the said belts being arranged to pass beneath their normal tray-supporting plane at the stations or points where the trays are intended to stop. 80

4. In a dining-room tramway, the combination with supporting posts or standards and suitable trays or receptacles, of yokes mounted upon said posts, endless belts for carrying the trays, and means mounted on the yokes 85 for supporting and guiding the belts.

5. In a dining-room tramway, the combination with supporting posts or standards and dish trays or receptacles, of yokes mounted upon said posts, endless belts for carrying 90 the trays, means mounted on the yokes for supporting and guiding the belts, and means for causing the belts to pass below their normal tray-supporting plane at the various stations or points where the trays are to stop. 95

6. In a dining-room tramway, the combination with dish receptacles or trays, and posts or standards, of yokes mounted on the posts, endless carrier-belts upon which the trays rest, means mounted on the yokes forming 100 runways for the tray-carrying portion of the belts, and rollers mounted on the yokes for supporting the lower or idle portion of the belts.

7. The combination with the supporting 105 posts or standards, of yokes mounted on said posts, endless belts, spacing-strips attached to the yokes and forming runways for the belts, the yokes being provided with keepers located below the runways, and rollers journaled in 110 the keepers for supporting the idle lower portion of the belts.

8. In a dining-room tramway, the combination with supporting posts or standards, of yokes mounted thereon, endless belts, belt- 115 runways supported by the yokes, supporting belt-rollers located below the runways and journaled in the yokes, and means for guiding the belts below the supporting-plane of the runways at certain points or stations. 120

9. In a dining-room tramway, the combination with supporting posts or standards, of a series of yokes mounted on the standards, horizontal bars connecting the yokes, endless belts, belt-runways mounted on the yokes, 125 and means for guiding the belts below the belt-supporting plane of the runways, at the various stations or points where the devices carried by the belts are to stop.

10. In a dining-room tramway, the combina- 130 tion with supporting posts or standards, of upper and lower yokes mounted on the standards, upper and lower endless belts, belt-runways mounted on the yokes, and means for

causing the belts of the upper and lower yokes to travel in opposite directions for the purpose set forth.

11. In a dining-room tramway system, the combination with supporting posts or standards, of yokes mounted thereon, endless carrier-belts mounted on the yokes, the tramway being arranged in sections, with a tray landing or stopping station at one end of each section, there being as many pairs of carrier-belts mounted on the yokes of the first section, as there are stations, and each successive section toward the rear having a pair of carrier-belts less than the preceding section, the tray-engaging portions of the carrier-belts being all arranged in the same plane except at the stations, and the individual belts of the various pairs, being unequally separated to accommodate different trays.

12. In a dining-room tramway system, the combination with supporting posts or standards, of upper and lower yokes mounted on the posts, endless carrier-belts mounted on the yokes, and means for moving the belts simultaneously in opposite directions, both the upper and lower portions of the tramway being arranged in sections, the first section having the carrier-belts of all the sections, and the carrier-belts diminishing in number at the various sections toward the rear, the arrangement being such that one pair of belts extends the entire length of the tramway, while the individual belts of the various pairs are unequally separated for the purpose set forth.

13. In a dining-room tramway system, the combination with a supporting-frame, and dish-trays, of yokes mounted thereon and pro-

vided with runways, endless tray-carrying belts engaging said runways, said belts being arranged in pairs, and the individual belts of each pair being unequally separated, and the various pairs of belts being of unequal length whereby they are adapted to land trays at various stations along the line of the tramway.

14. In a dining-room tramway the combination with supporting posts or standards, of yokes mounted thereon, runways carried by the yokes, endless tray-carrying belts mounted on the runways, and arranged in pairs, the individual belts of the various pairs being unequally separated, and the pairs of belts being of unequal length, the tramway being provided with stations, rollers located at the stations and arranged to guide a pair of belts below the normal tray-supporting plane of the belts, at each station, whereby a tray is stopped, the lower idle portion of the belts being supported by the yoke-rollers.

15. In a dining-room tramway system, the combination with supporting posts or standards, of a number of yokes, each yoke being provided with a socket on each side in which the top of a post fits, depending keepers located between the posts, and connected by a bridge-piece, the keepers being open, rollers journaled in the keepers, runways mounted on the yokes above the keepers, and endless belts engaging the runways and rollers.

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

AMANDA L. WILLOUGHBY.

Witnesses:

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MARY C. LAMB.