

Jan. 24, 1928.

A. E. EVANS

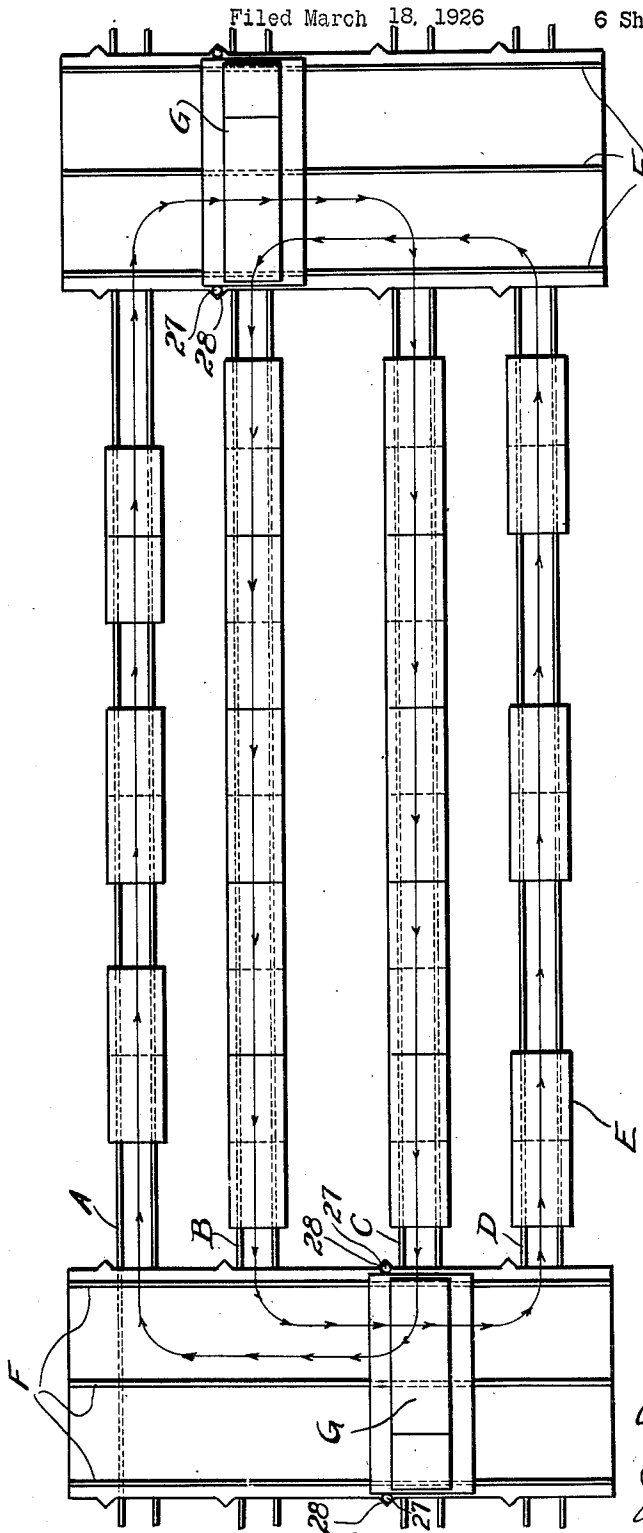
1,657,206

TRANSFER CAR

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6 Sheets-Sheet 1

Fig. 1.



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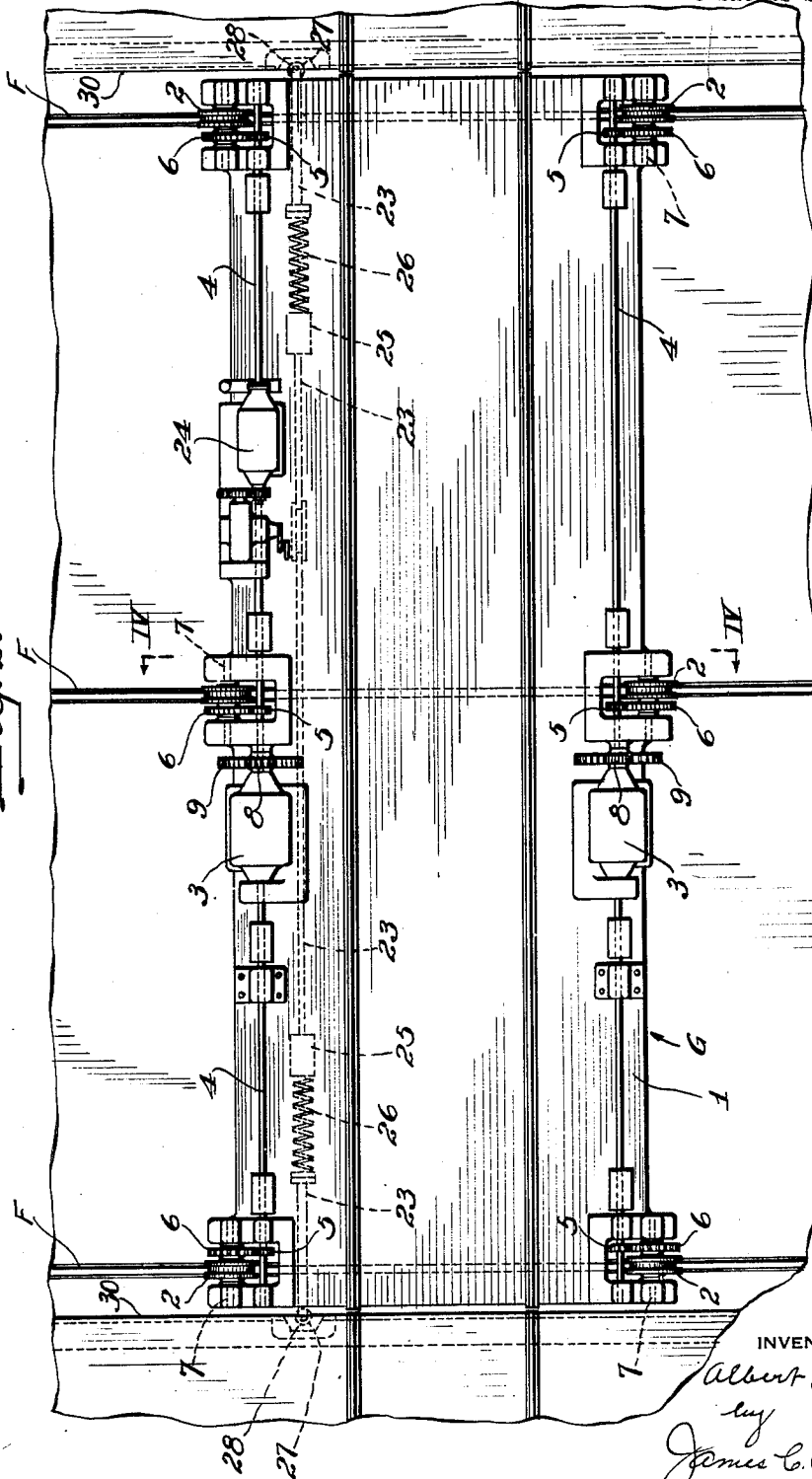
1,657,206

TRANSFER CAR

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Fig. 2.



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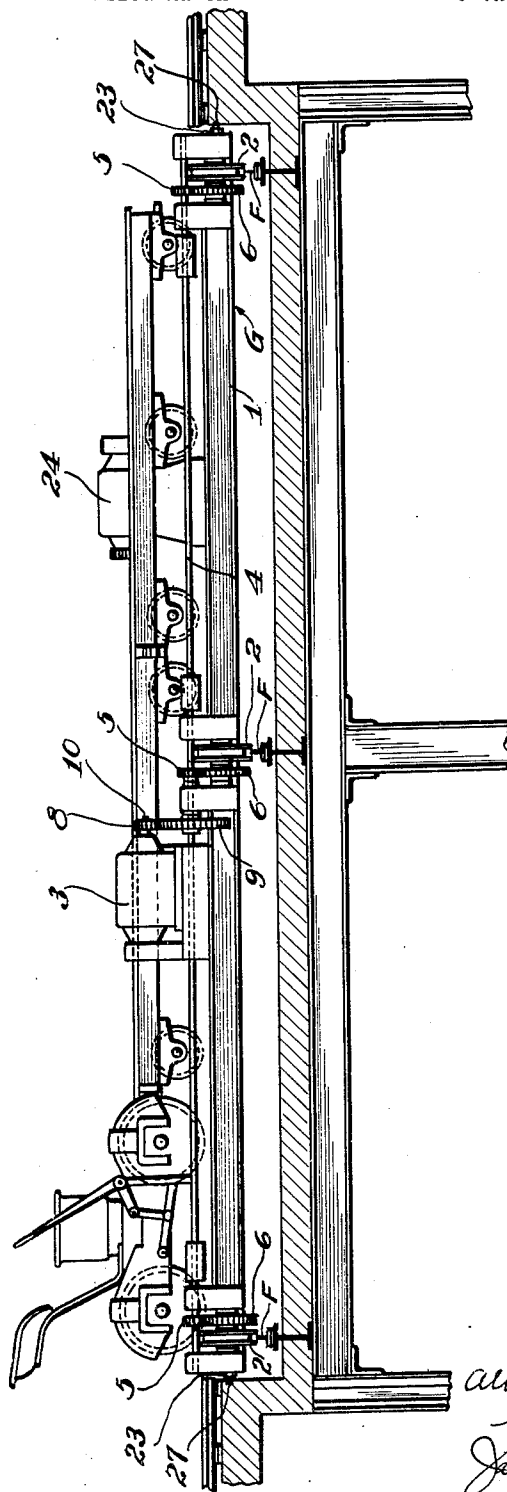
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TRANSFER CAR

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Fig. 3.



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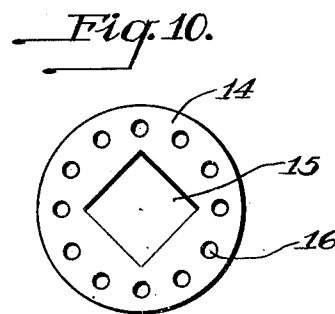
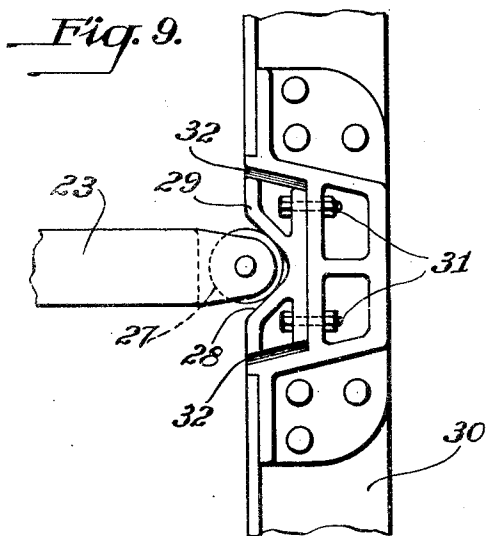
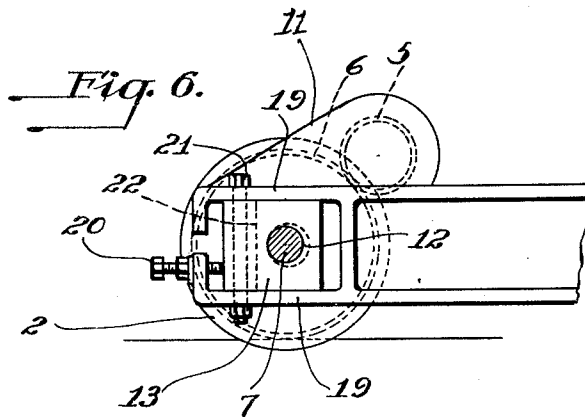
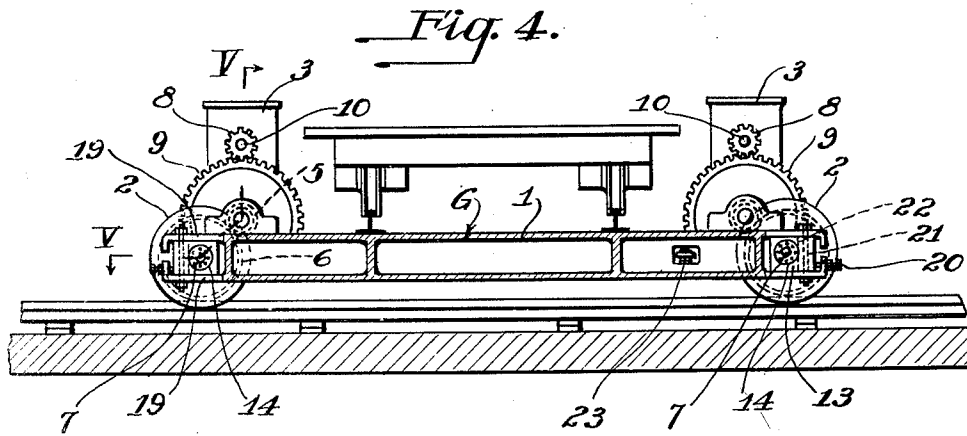
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TRANSFER CAR

Filed March 18, 1926

6 Sheets-Sheet 4



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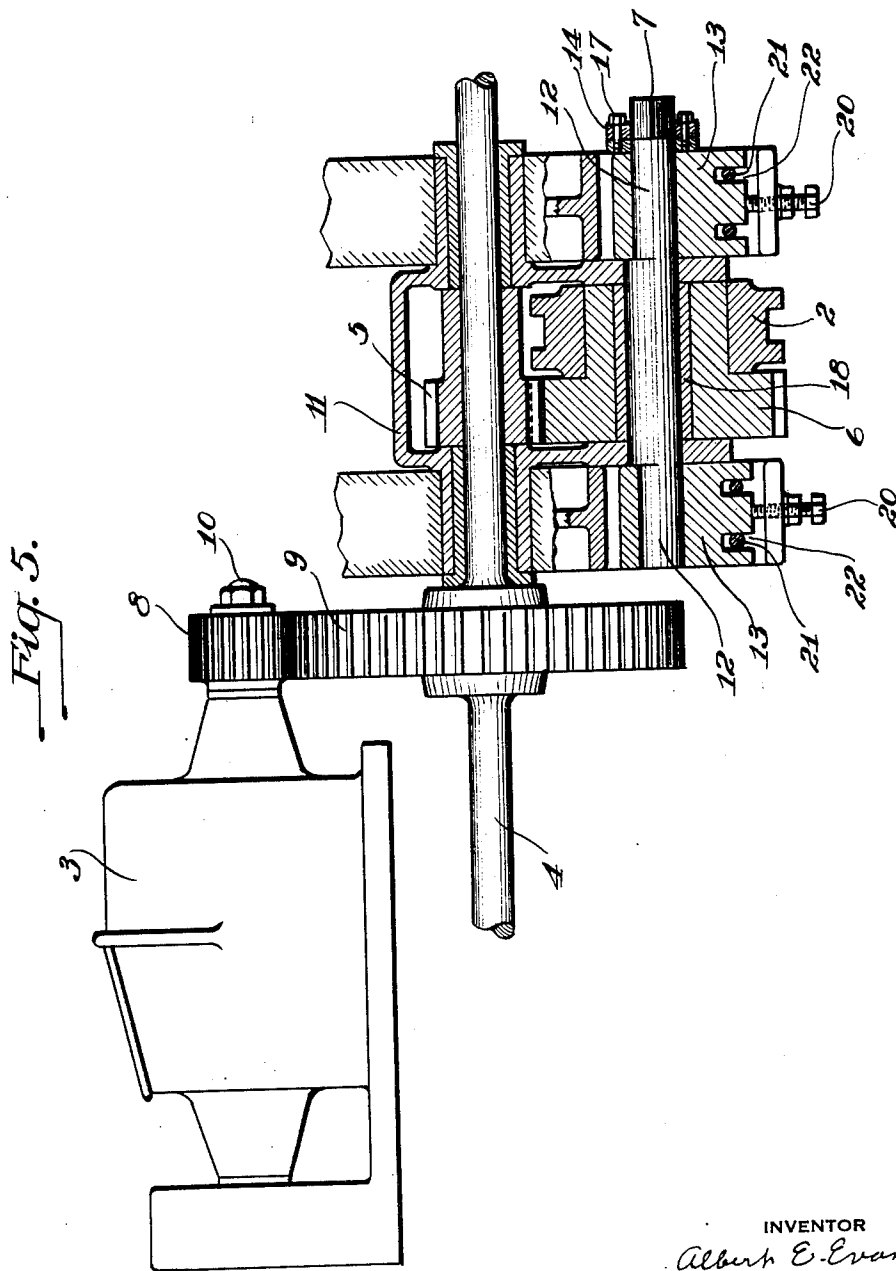
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TRANSFER CAR

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TRANSFER CAR

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Fig. 8.

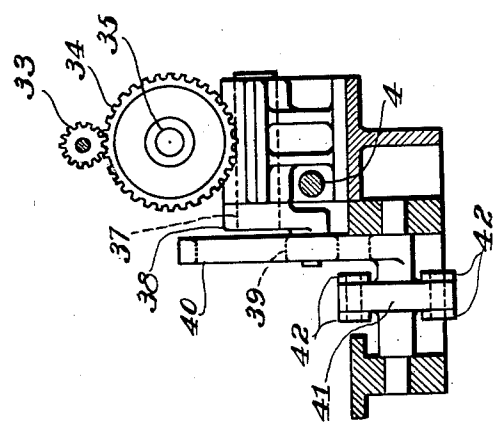
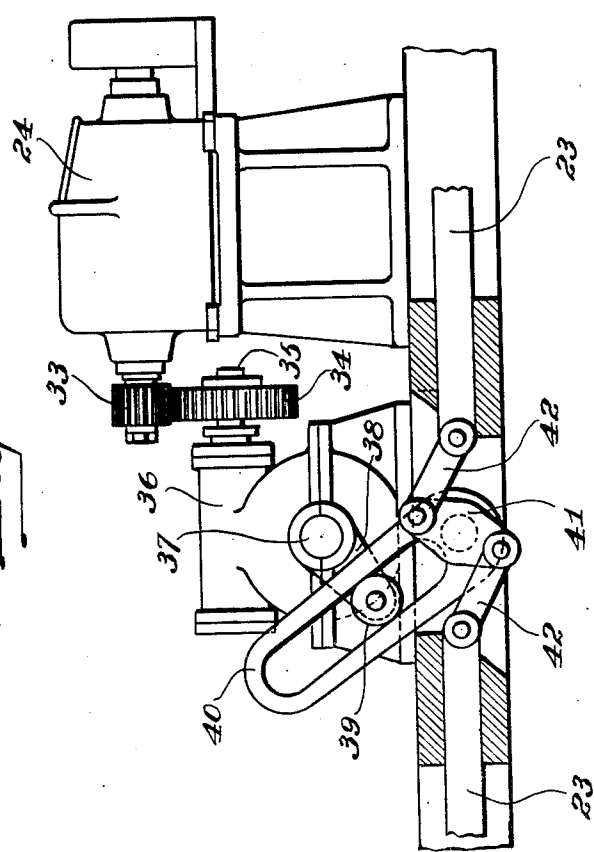


Fig. 7



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1,657,206

# UNITED STATES PATENT OFFICE.

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## TRANSFER CAR.

Application filed March 18, 1926. Serial No. 95,628.

The invention relates to transfer cars, the apparatus shown being particularly designed for shifting the glass grinding tables used in grinding and polishing glass between the parallel tracks in a system, such as that illustrated and described in the Fox Patent No. 1,554,804 of Sept. 22, 1925. The transfer car as herein shown and described, is designed to shift two tables at one time, and it is important that this should be done without moving the tables relatively in a vertical direction, as such movement tends to break the joint between the two tables. A sheet of glass may extend across this joint and any substantial relative movement of the tables may cause the glass to be broken or loosened in its plaster setting, and even where the glass does not lie over the joint between the tables, it is desirable to avoid cracking the plaster surface lying over the joint. One of the objects of the invention, therefore, is to provide an improved construction permitting of the adjustment of the level of the transfer car, so that the tracks thereon are in exact alignment with the tracks from which the tables are withdrawn and those to which the tables are shifted or transferred. A further object of the invention is the provision of improved means for indexing or positioning the car. One embodiment of the invention is illustrated in the accompanying drawings, wherein:

Figure 1 is a diagrammatic plan view showing the general arrangement of the tracks. Fig. 2 is a plan view of the transfer car. Fig. 3 is an end view of the car. Fig. 4 is a section on the line IV—IV of Fig. 2. Fig. 5 is a section on the line V—V of Fig. 2. Fig. 6 is an enlarged detail view showing the bearing adjustment. Figs. 7, 8 and 9 are detail views illustrating the indexing mechanism. And Fig. 10 is an end view of the locking plate for the wheel shafts.

Referring to Fig. 1, A, B, C and D are four parallel tracks carrying the tables E upon which the glass to be ground and polished is mounted. The tracks A and D are return tracks, while the tracks B and C are working tracks over which are mounted the grinding and polishing machines, not shown. At the ends of the tracks just referred to, are the transfer tracks, each comprising the three rails F, upon which rails

are mounted the transfer cars G, to which the invention particularly relates. The arrows on Fig. 1 indicate the manner in which the tables E are shifted, those returning on track D being shifted to track B.

The transfer car G comprises a framework 1 provided with six wheels 2, 2, 2, etc. riding upon the rails F. All six wheels are preferably driven, although this is not necessarily the case. The drive for the wheels is accomplished by means of the motors 3, 3 operating through suitable reducing gearing and connections, including the transverse shafts 4, 4. These driving mechanisms are identical so that a description of one will be sufficient. The shaft 4 is provided with three pinions 5, 5, 5 which mesh with the spur gears 6, 6, 6, carried by the shafts 7, 7, 7 which also carry the car wheels 2, 2, 2. The drive shaft 4 is itself driven from the motor 3 through the intermediary of the pinion 8 and spur gear 9 keyed to the motor shaft 10 and shaft 4, respectively. The gears 5 and 6 are carried in a suitable housing 11, as indicated in Figs. 5 and 6, which housing acts as a support for the shafts 4 and 7, holding such shafts in relatively fixed positions.

The shaft 7 has its end portions 12, 12 formed eccentrically with respect to the central portion, and these ends are carried by a pair of bearing blocks 13, 13, being held against rotation by means of a lock plate 14. This lock plate has a square perforation 15 (Fig. 10) fitting over the squared end of the shaft and provided with a plurality of circular perforations 16. This plate is held against rotation by means of the stud bolts 17 which engage perforations in the end of the bearing member 13. By this means the shaft 7 may be held in any desired position of rotary adjustment, and such adjustment will vary the height of the body of the car in the leveling up operation heretofore referred to. The car wheel 2 and pinion 6 are mounted to rotate with the bushing 18, to which the pinion is keyed.

In order to permit of the adjustment of the shaft 7, as just described, it is necessary that the bearings 13, 13 should be supported so that they may move longitudinally of the framing of the car. This is accomplished by providing a guideway in the form of the members 19, 19 (Fig. 6) in which the bearings are slidably mounted.

A set screw 20 may be employed to position each bearing, and the bearings are clamped in position securely by means of transverse bolts 21, 21 which extend through the members 19, 19 and also through the bearing blocks 13, such blocks being slotted, as indicated at 22 (Fig. 5) in order to receive the bolts. The members 19, 19 have sufficient spring, so that they may be forced together slightly to accomplish the clamping function. This arrangement provides for the adjustment of each wheel of the car independently of the others and without interference with the driving mechanism.

15 The indexing of the car is accomplished by means of a pair of rods 23, 23 operated from the motor 24 carried upon the car. These rods have slip connections at 25, 25 with the outer ends of the rods pushed outward by the springs 26, 26. The extreme outer ends of the rods carry the rollers 27, 27 adapted to engage recesses 28, 28, 28, etc. opposite the sides of the car. In order to bring the recesses at exactly the right points, the blocks 29, in which the recesses are formed, (Fig. 9) are mounted for adjustment with respect to the supporting frame member 30. The blocks 29 are clamped in position by means of the bolts 31, whose heads fit in suitable T-slots in the block 29. Spaces are left at the ends of the blocks and these spaces are fitted with shims 32, 32, which serve to hold the blocks rigidly in position after the shims have been put into place and the bolts 31 have been tightened. By varying the shims, the blocks 29 may be adjusted longitudinally within the limits provided by the spaces at the ends thereof. This takes care of any wear which occurs and permits the tracks on the transfer car to be accurately lined up with the tracks carrying the tables.

The mechanism for operating the indexing rods from the motor is shown in Figs. 7 and 8. The spur gear 33 on the motor shaft drives a pinion 34, whose shaft 35 carries a worm lying within the casing 36. This worm drives a worm wheel upon the shaft 37. A crank 38 is carried by this shaft and has at its outer end a roller 39 engaging the slotted member 40. This member 40 in turn rocks a crank 41 connected at its ends to the indexing rods 23, 23 by means of the toggle links 42, 42. This mechanism serves to draw the indexing rods inwardly when it is desired to move the car to another position. During the movement of the car from one position to another, the rollers 27 are pressed outwardly by the springs 26, so that they move into the recesses 28, 28 when a new position is reached without the necessity of operating the motor 24. In order to release the indexing device, it is only necessary to start the motor, causing the parts to assume the positions indicated

in Fig. 7, at which time the rollers on the indexing rods are pressed into the recesses 28 with only a slight amount of pressure, so that the car may be easily shifted from its indexed position to a new position.

What I claim is:

1. In a transfer car having a car receiving track thereon, supporting wheels at the sides of the car, independent shafts for the wheels on one side of the car, each of which has its ends eccentric with respect to the portion of the shaft therebetween on which the wheel is journaled, a pair of bearings for each shaft in which the shaft is adjustably held against rotation, said bearings being mounted on the car for horizontal adjustment, means for clamping the bearings in adjusted position, a driven shaft extending longitudinally of said side of the car, a gear carried by each of said shafts for the wheels, and gears on said driven shaft for driving the gears on the wheel shafts.

2. In a transfer car having a car receiving track thereon, supporting wheels at the sides of the car, independent shafts for the wheels on one side of the car, each of which has its ends eccentric with respect to the portion of the shaft therebetween on which the wheel is journaled, a pair of bearings for each shaft in which the shaft is adjustably held against rotation, said bearings being mounted on the car for horizontal adjustment, adjustable stop means for limiting the horizontal movement of the bearings, means for clamping the bearings in adjusted position, a driven shaft extending longitudinally of said side of the car, a gear carried by each of said shafts for the wheels, and gears on said driven shaft for driving the gears on the wheel shafts.

3. In a transfer car having a car receiving track thereon, supporting wheels at the sides of the car, independent shafts for the wheels on one side of the car, each of which has its ends eccentric with respect to the portion of the shaft therebetween on which the wheel is journaled, a pair of bearings for each shaft in which the shaft is adjustably held against rotation, said bearings being mounted on the car for horizontal adjustment, movable guides for said bearings, means for clamping the guides against the bearings to hold them in adjusted position, a driven shaft extending longitudinally of said side of the car, a gear carried by each of said shafts for the wheels, and gears on said driven shaft for driving the gears on the wheel shafts.

4. The combination with a transfer car mounted upon a track, of an indexing track in parallel with said track, and provided with a recess, an indexing block mounted for adjustment longitudinally in said recess, shims fitting between the ends of the block and the ends of the recess, means for clamp-

ing the block in position in the recess, and an indexing member carried by the car and adapted to engage said recess.

5 5. The combination with a transfer car mounted upon a track, of a pair of indexing tracks in parallel with said tracks on opposite sides thereof and provided with indexing recesses, a pair of indexing rods carried by the car and adapted to engage said  
10 recesses, a double crank intermediate the inner ends of the rods, toggle links connecting said ends with the ends of the crank, a slotted arm connected to said crank so as to rock it, a motor, and a crank driven thereby  
15 having its end in operative engagement with the slot in said arm.

6. The combination with a transfer car mounted upon a track, of a pair of indexing tracks in parallel with said tracks on opposite sides thereof and provided with indexing recesses, a pair of indexing rods carried  
20 by the car and adapted to engage said recesses, a double crank intermediate the inner ends of the rods, toggle links connecting said ends with the ends of the crank, an  
25 arm connected to said crank, a motor, and means including a crank operated by the motor for rocking said arm.

In testimony whereof, I have hereunto subscribed my name this 12th day of March, 30 1926.

ALBERT E. EVANS.