

May 7, 1935.

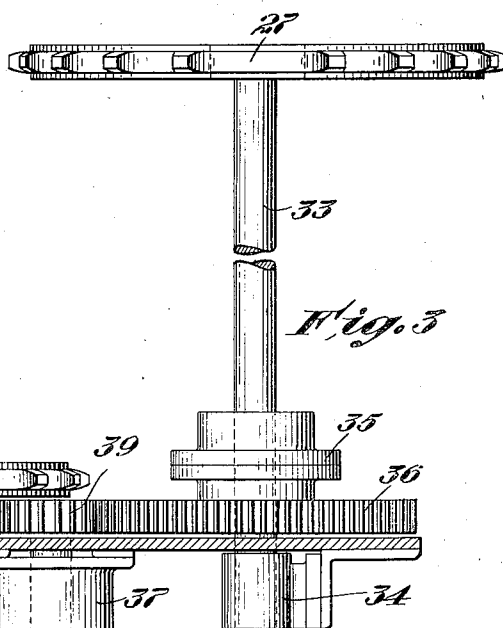
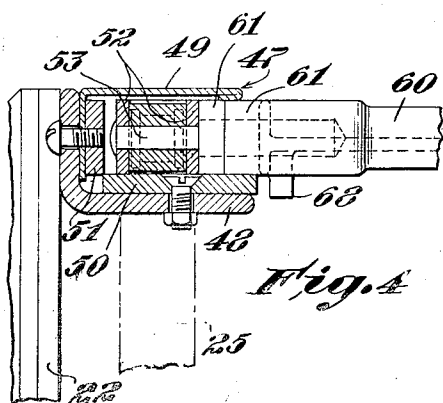
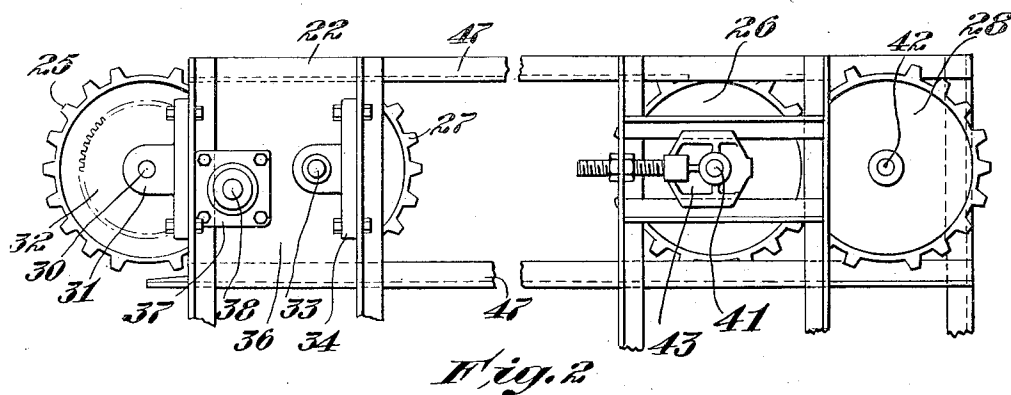
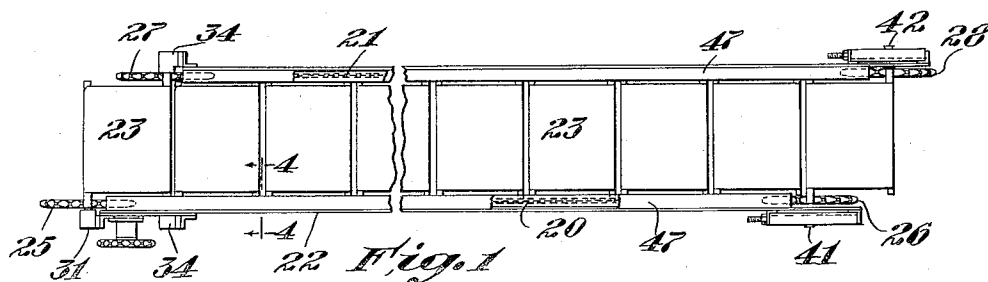
H. R. PERRY ET AL

2,000,417

CONVEYER

Filed June 7, 1933

4 Sheets-Sheet 1



Inventor's
Harold R. Perry
Chester S. Jennings
Attys.

May 7, 1935.

H. R. PERRY ET AL

2,000,417

CONVEYER

Filed June 7, 1933

4 Sheets-Sheet 2

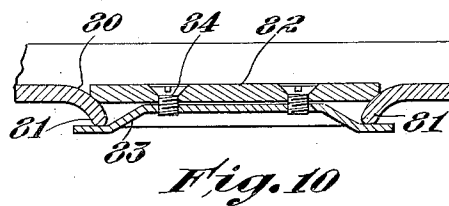
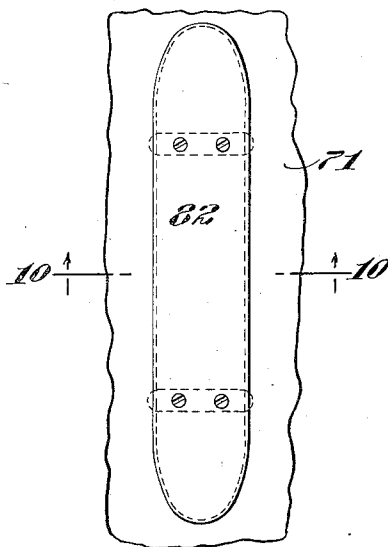
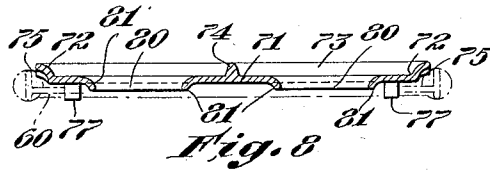
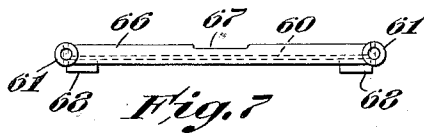
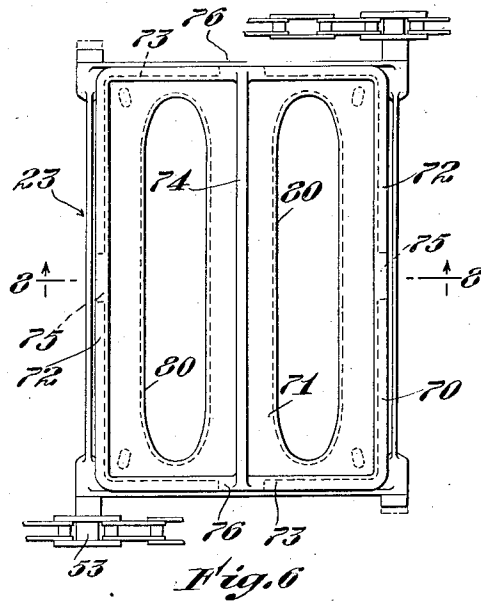
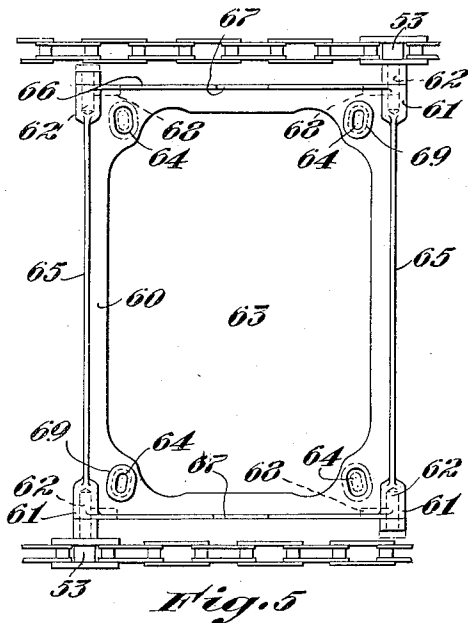


Fig. 9

Inventors
Harold R. Perry
Chester S. Jennings
by Robert Cushman & Woodbury
Attys.

May 7, 1935.

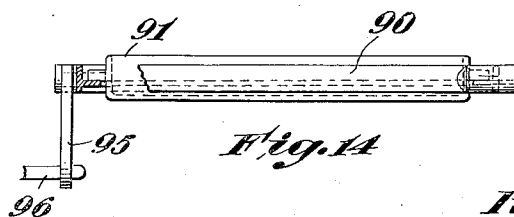
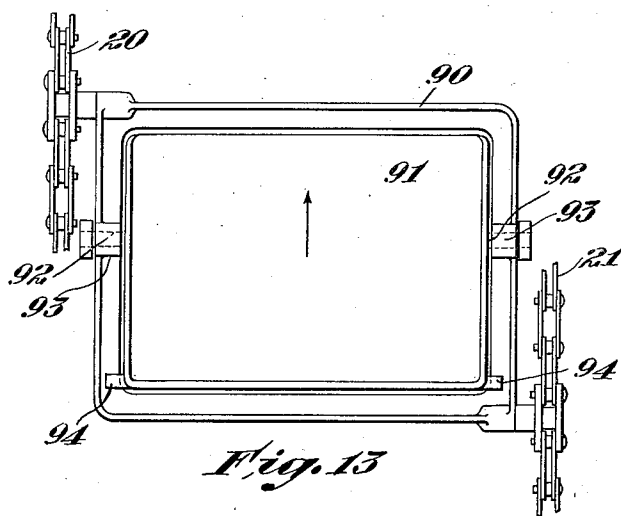
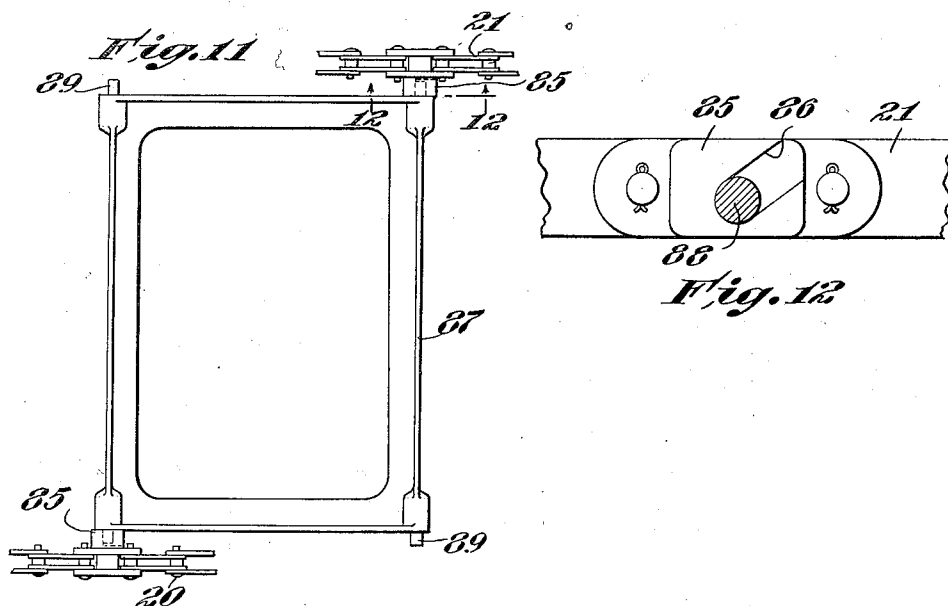
H. R. PERRY ET AL

2,000,417

CONVEYER

Filed June 7, 1933

4 Sheets-Sheet 3



Inventors
Harold R. Perry
Chester S. Jennings
by Roberts, Cushman & Northrup
Att'ys.

May 7, 1935.

H. R. PERRY ET AL

2,000,417

CONVEYER

Filed June 7, 1933

4 Sheets-Sheet 4

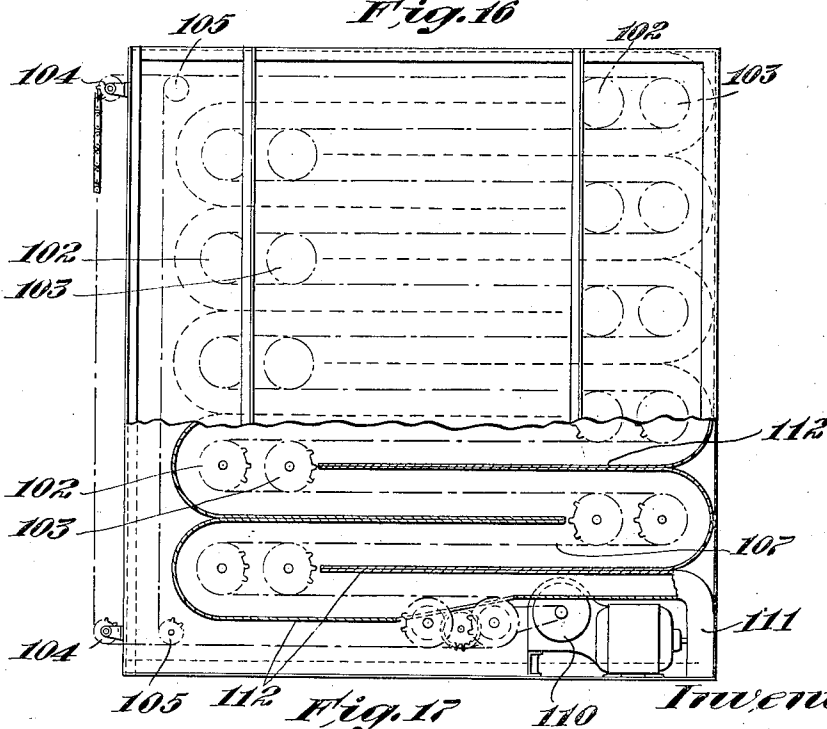
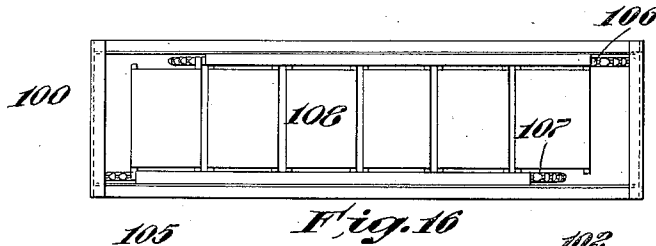
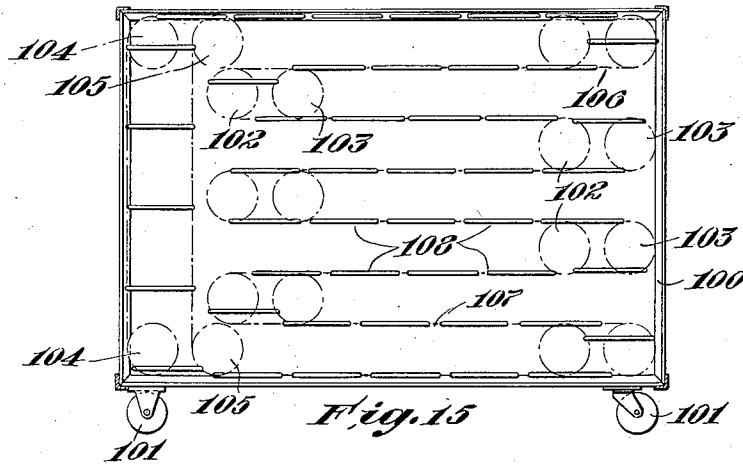


Fig. 17

Inventors
Harold R. Perry
Chester S. Jennings
by Roberto Cushman & Woodbury
Attys.

UNITED STATES PATENT OFFICE

2,000,417

CONVEYER

Harold R. Perry, Swarthmore, Pa., and Chester S. Jennings, Syracuse, N. Y., assignors to The Lamson Company, Syracuse, N. Y., a corporation of Massachusetts

Application June 7, 1933, Serial No. 674,624

5 Claims. (Cl. 198—138)

This invention relates to an improvement in conveyers, and more particularly in conveyers which include load supporting racks or trays and which are so constructed that the load supporting elements are at all times during their travel in planes parallel to the floor or to a common plane. In the copending application of Harold R. Perry filed February 24, 1933, and bearing Serial No. 658,305 are disclosed various types of such conveyers primarily but not exclusively adapted for use in transporting shoes.

The objects of this invention reside in the provision of a conveyer embodying a plurality of features, certain of which are set forth briefly as follows: Means for so mounting racks between a pair of traveling chains that the racks remain at all times in planes parallel to the floor or to a selected plane; means for driving the rack carrying chains; rack and saddle assembly, the saddle being removably secured to the rack and having openings therein suitably formed to support the articles being transported; removable plates for closing the openings in the saddles; and a portable floor rack provided with a traveling conveyor by which shoes or other articles are supported, which rack may include a motor by which the conveyor is driven and in addition a dryer by which the articles in the rack may be brought to or retained in the proper condition.

Other objects will appear from a consideration of the following description of a selected embodiment of this invention and of the drawings which form a part thereof and in which

Fig. 1 is a plan view of a conveyer embodying this invention;

Fig. 2 is an enlarged side view of portions thereof including the driving and driven elements;

Fig. 3 is an enlarged plan view of the driving elements at one end of the conveyer;

Fig. 4 is an enlarged sectional view taken along the line 4—4 of Fig. 1;

Fig. 5 is a plan view of one form of rack which embodies this invention;

Fig. 6 is a plan view of the rack shown in Fig. 5 with a saddle mounted thereon;

Fig. 7 is an end view of the rack shown in Fig. 5;

Fig. 8 is an enlarged sectional view taken along the line 8—8 on Fig. 6;

Fig. 9 is a plan view of a portion of a saddle with an opening therein closed by a filler plate;

Fig. 10 is an enlarged sectional view taken along the line 10—10 on Fig. 9;

Fig. 11 is a plan view of a removable form of rack which might be used in this system;

Fig. 12 is an enlarged sectional view taken along the line 12—12 on Fig. 11;

Fig. 13 is a plan view of another form of rack and saddle assembly;

Fig. 14 is a side elevation thereof with parts broken away;

Fig. 15 is a side elevation with parts broken away illustrating one form of portable floor rack embodying this invention;

Fig. 16 is a plan view thereof; and

Fig. 17 is a side elevation with parts broken away illustrating another form of such portable floor rack.

As shown in Fig. 1 the conveyer includes a pair of chains 20 and 21 supported upon a frame or upright 22 and carrying between them a plurality of rack and saddle assemblies 23. The chains 20 and 21 pass around head and foot sprockets 25, 26 and 27, 28 respectively. The head sprocket 25 is fixed upon a stub shaft 30 carried by a bearing block 31 mounted upon the frame and having fixed thereon a gear 32. The head sprocket 27 is fixed upon a shaft 33 which extends across the frame and is carried by bearing blocks 34 on the frame. The shaft 33 is made up of two aligned sections joined by an adjustable coupling 35 through which the operations of the sprockets are made uniform to insure the alignment of the pins on the chains as will be set forth hereinbelow.

Secured to the shaft 33 is a gear 36 which is in alignment with the gear 32, is of the same diameter and is provided with the same number of teeth. Carried by a bearing block 37 fixed on the frame between the blocks 31 and 34 is a stub shaft 38 to which is secured a gear 39, the teeth of which mesh with the teeth of the gears 32 and 36. The stub shaft 38 is connected by suitable means, a sprocket 40 being here shown, with a source of power (not shown) and thus through the described gearing drives the sprockets 25 and 27 at a uniform rate of speed in the same direction. The foot sprockets 26 and 28 are carried by stub shafts 41 and 42 journaled in bearing boxes 43 which are adjustably mounted on the walls of the frame. The upper and lower reaches of the chains 20, 21 travel between the head and foot sprockets in guide channels 47 formed by angle brackets 48, 49 carried by the frame 22 and lined with strips 50, 51 of similar material, as shown particularly in Fig. 4. Each chain includes pairs of side links 52 spaced apart at regular intervals and by which are supported inwardly projecting pins 53. The links 52 are heavier and larger than the links normally used, and as shown in Fig. 4 rest upon the strips 50.

Each assembly 23 comprises a rack 60 carried by the pins 53 and a saddle 70 which rests upon the rack 60 and is removably secured thereto. The rack 60 is substantially rectangular and each end of its side edges terminates in a boss 61 having a socket 62 bored therein and adapted to receive a pin 53. In the base of the rack is provided a central opening 63 as well as four apertures 64, one at each corner. The bosses 61 are connected by walls 65 extending along each side edge, and walls 66 extending along each end edge, the walls 66 having depressions 67 therein midway their length. Projecting from the under side of the rack at each corner are tongues 68 substantially rectangular in cross section, the pair of tongues at each end being aligned in planes parallel to each other and to those of the walls 66. As shown in Figs. 5 and 6 of the drawings, each rack is supported upon two pins 53 which project from the chains and enter diametrically located sockets 62. The racks are provided with four sockets, two only of which are used, depending upon the relation of the head and foot sprockets of the chains. The bosses 61 when made are identical but after the sockets to be used are determined, the bosses containing the other sockets are shortened, as will be apparent from a consideration of Figs. 5 and 6, in which dotted lines indicate the removed portions of the shortened bosses. Referring particularly to Fig. 4, it will be noted that the bosses 61 which receive the pins 53 are, under normal conditions, practically in contact with the links 52 of the chains, that the other bosses, while they enter the guide channels and rest upon the strips 50, are appreciably spaced from the chains, and that the tongues 68 act to limit the lateral movement of the racks. The guide channels 47 terminate short of the sprocket wheels, so that the bosses 61 of the racks which follow the bosses attached to the chain are released as the racks are lowered, and since they are spaced from the chain can descend freely. Inserted in each of the apertures 64 are annular bushings 69 of rubber or other soft material, two only of such bushings being shown in full lines in Fig. 5.

The saddle 70 is of any desired substantially rigid moldable material, a phenol condensation product, such as "Bakelite", being preferred. The saddle is in the form of a tray having a base 71 bounded by side and end walls 72 and 73 respectively and divided by one or more partition walls 74 into compartments. The walls are outwardly and upwardly curved and have depressions 75 and 76 respectively midway of their lengths. Projecting downwardly from the under side of the base 71 at each corner are tongues 77. When assembled with a rack the depressions 76 rest in the depressions 67 of the walls 66 and the tongues 77 enter the bushings 69, whereby the saddle is positioned and yieldably held upon the rack. The articles to be conveyed are placed in the compartments of the base 71 and, if desired, openings may be made in the base into which the articles may be inserted. The saddle is here shown divided into two compartments through the bases of which openings 80 are made, defined by downwardly curved flanges 81. The central opening 63 in the rack is of such dimensions that it will receive the downturned flanges 81 of the openings 80. The openings 80 may be closed by filler plates 82, the edges of which are formed to rest upon the flanges 81. The plates 82 may be removably secured to

the saddles as by spring clips 83 attached by screws 84 to the under sides of the plates.

Figs. 11 and 12 illustrate a form of rack which is easily removable from the chains 20, 21. Pinned or otherwise fixed to the inner wall of each chain at definite distances apart are blocks 85. Opening into a side wall of each block is a downwardly inclined pocket 86. Projecting from the end walls of a rack 87 at diametrically opposite corners are pins 88 which enter the pockets 86. Lugs 89 project from the other corners and travel in guide channels which also receive the blocks 85.

In place of the fixed saddles previously described other forms of movable saddles supported by the racks may be employed, as for example the carriers or containers shown in Figs. 13 and 14. The rack 90 is secured to the chains 20, 21 in any suitable manner, the means previously described for securing the rack 60 being selected for purposes of illustration. The rack 90 is merely a rectangular frame within which is swung a saddle 91. The saddle 91 is in the form of a pan from the end walls of which stub shafts 92 project through bosses 93 upon the rack frame. The shafts 92 are preferably off center so that the weight of the saddle tends to hold it in the position shown in the drawings, tongues 94 which project from the mouth of the saddle engaging the rack and limiting the pivotal movement of the saddle in that direction. Projecting downwardly from one or both ends of the saddle are levers 95 adapted to be engaged by suitably located carriers or trips 96 to dump the contents of the saddle. By providing levers at both ends and making the levers of various lengths and mounting the cams at various heights it can be arranged so that each saddle is dumped only at certain predetermined stations.

This invention has heretofore been described as employed in transporting articles along a path of travel. It is also applicable for employment in a portable floor rack, wherein a plurality of articles may be placed and moved as a unit from one location to another location. The use of floor racks is old and well known in many industries, such as the manufacture of shoes. The racks previously employed comprise one or more stationary shelves or containers on or in which the articles are placed. As shown in Figs. 15, 16 and 17, the floor rack 100 comprises a bin or container open at the top and ends are provided with a plurality of casters 101 for easy movement. Supported upon the side walls of the rack are pairs of sprockets 102, 103, alternately arranged in tiers and guide sprockets 104, 105 mounted in pairs at upper and lower planes at one open end of the rack. Passed around said sprockets are two chains 106, 107 which support between them rack and saddle assemblies 108. The assemblies 108 may be of the construction previously described and connected at diagonally opposite corners to the chains so that at all times the assemblies remain parallel to the floor or to a selected plane.

In the floor rack shown in Figs. 15 and 16 the operator moves the conveyer chains manually, usually when placing articles on the rack and saddle assemblies. Fig. 17 shows a floor rack provided with a motor 110 by which the conveyer chains are positively advanced, and in addition a blower 111 actuated by the motor. The various horizontal strands of the chains are separated by connected partitions 112 which also close the ends of the rack, thus forming a continuous pas-

sage through which the articles travel and through which the blower forces the air. The air may be heated or otherwise treated so that the articles after completing their journey are in the state or condition desired by the operator.

While certain structural features have been shown and described in detail and various embodiments of the invention set forth, it will be understood that the invention is not so limited and that changes in the structural features and other embodiments may be made without departing from the spirit and scope of the invention as set forth in the following claims.

We claim:

1. A conveyer comprising in combination a pair of parallel traveling chains, a frame, head and foot sprockets over which said chains travel, and means for causing said chains to move in unison, which means comprise a stub shaft on which the head sprocket of one chain is mounted, a shaft extending transversely across the frame on one end of which the head sprocket of the other chain is mounted, said shaft being of two sections joined by an adjustable coupling, aligned gears mounted upon said shafts of the same diameter and having the same number of teeth, and an intermediate gear in engagement with both said gears.

2. A conveyer comprising in combination a rack having a central opening in the base thereof, a saddle having an opening therein which registers with the opening in the rack and in which the articles transported by the conveyer are supported, means for removably and yieldably securing said saddle to said rack, and means for engaging and advancing said rack to transport said articles.

3. A conveyer comprising in combination a rack having a central opening in the base thereof, a saddle having an opening therein which registers with the opening in the rack and in which the articles transported by the conveyer are supported, said rack having in its base a plurality of apertures, and said saddle having tongues which, when said rack and saddle are assembled, enter said apertures to position the saddle on the rack, and means for engaging and advancing said rack to transport said articles.

4. A conveyer comprising in combination a rack having a central opening in the base thereof, a saddle having an opening therein which registers with the opening in the rack and in which the articles transported by the conveyer are supported, said rack having in its base a plurality of apertures, annular bushings in said apertures, said saddle having tongues which, when said rack and saddle are assembled, enter the bushings in said apertures to secure the saddle in position on the rack, and means for engaging and advancing said rack to transport said articles.

5. A conveyer comprising in combination a rack having a central opening in the base thereof, a saddle having an opening therein which registers with the opening in the rack and in which the articles transported by the conveyer are supported, means for removably and yieldably securing said saddle to said rack, means for closing the opening in said saddle, and means for engaging and advancing said rack to transport said articles.

HAROLD R. PERRY.
CHESTER S. JENNINGS.