July 7, 1942. L. M. COTCHETT 2,288,993

RING RAIL FOR SPINNING AND TWISTER FRAMES

Filed May 24, 1940

Fig. 1

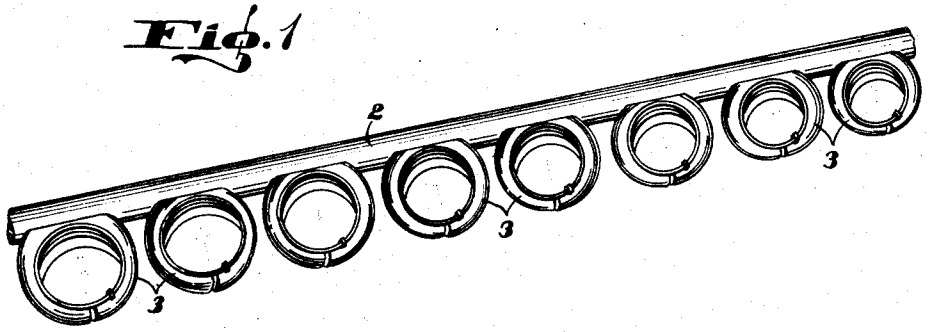
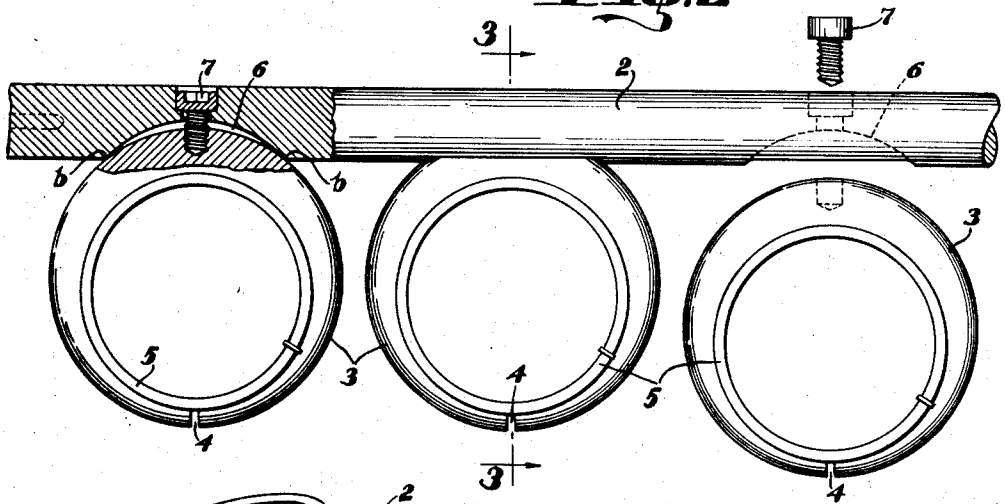


Fig. 2



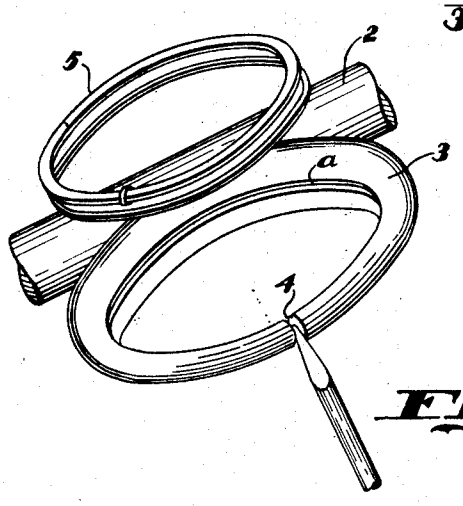


Fig. 3

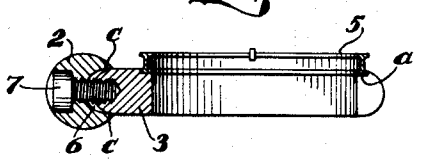


Fig. 4

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RING RAIL FOR SPINNING AND TWISTER FRAMES

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13 Claims. (Cl. 57—137)

This invention relates to spinning and twister frames of the ring type and is more especially concerned with the ring rails of such frames.

The ring rail constructions commonly used commercially comprise a channel bar supported on a series of lifter rods. The bar is apertured at regular intervals to receive holders for the individual rings and any one of various arrangements are employed to secure the holders releasably in the rail.

The present invention aims to improve these ring rail assemblies with a view to simplifying their construction, reducing the expense of manufacture of them and providing a construction more convenient to work around, which can be more easily kept clean, and which shall be a general improvement on prior structures of this character.

The nature of the invention will be readily understood from the following description when read in connection with the accompanying drawing, and the novel features will be particularly pointed out in the appended claims.

In the drawing,

Figure 1 is a perspective view of a portion of a ring rail constructed in accordance with this invention;

Fig. 2 is a plan view of said rail with parts broken away;

Fig. 3 is a sectional view approximately on the line 3—3, Fig. 2; and

Fig. 4 is an angular view of a portion of the rail showing the method of inserting or removing a ring from its holder.

Referring first to Figs. 1 and 2, the ring rail there shown includes a bar 2 forming the main supporting element of the rail and carrying a series of ring holders 3. The bar may be of any suitable cross-sectional form but conveniently consists of a cold rolled steel bar of circular cross-sectional form and of suitable diameter to have the necessary stiffness. As a rule such a bar an inch or an inch and a quarter in diameter is satisfactory.

The holders 3 are of annular form with the aperture in each holder disposed eccentrically with reference to its circular edge so that the ring is considerably wider at the side engaging its supporting box than at its opposite or free side. The latter edge is slotted or split, as shown at 4 in Fig. 2. Surrounding the aperture and formed in the adjacent inner margin of the holder is a circumferential seat *a*, Figs. 3 and 4, for receiving the lower flanged edge of the ring 5. By inserting a screw driver or similar implement in the slot 4, Fig. 4, and turning or twisting it, the opposing ends of the holder 3 can be sprung apart sufficiently to allow the ring 5 to be entered in its seat *a*. When the screw driver is removed the spring of the holder clamps the ring with ample pressure to hold it securely in position. It may be removed by springing the ends of the holder apart in the manner just described so as to relieve the pressure with which it grips the flange of the ring.

These circular ring holders are mounted in the bar 2 by forming segmental slots 6, Fig. 2, in the bar, the radius of curvature of the slots preferably being slightly smaller than that of the holders 3 so that the edge of each holder will bear on the walls of the slots at approximately the ends of these slots when it is fully seated but will be free from contact with said walls at intermediate points. This relationship is clearly shown at the left-hand ring in Fig. 2, the bearing points being indicated at *b*—*b*. A screw 7 is inserted from the rearward side of the rail 2 through a hole in it and is threaded into a hole tapped in the wider portion of the holder 3 where, as it is tightened up, it draws the holder back into the slot. Thus it cooperates with the bearing points *b*—*b* to form, in effect, a three-point bearing with the bar.

It should also be observed that the edge of the holder 3 is rounded so that its transverse cross-sectional outline is about 180° of a circle. As shown in Fig. 3 the slot 6 has a similar cross-sectional outline but the radius of curvature of the rearward wall of the slot is made very slightly smaller than that of the entering portion of the holder. Consequently, as the holder is drawn into its slot by turning up the screws 7, the upper and lower edges of the holder find a bearing in the walls of the slot as shown at *c*—*c*, Fig. 3, and a clearance is provided between these points. Here again, a three-point contact is produced between the holder and the bar, the three points being vertically disposed in this instance, whereas the previously mentioned three-point bearing is in a horizontal plane. The clearances are shown in both Figs. 2 and 3 considerably exaggerated in order better to illustrate the construction.

It will be evident from the foregoing that the invention provides a ring rail assembly of exceptionally simple construction; that it can be manufactured economically, and that the act of assembling the holders in the bar automatically aligns them with each other and positions them accurately with reference to the bar longitudi-

nally, laterally, and vertically. This action takes place by virtue of the cooperation of the curved surfaces of the ring holders with the curved surfaces of the walls of the slots, it being observed that each slot has surfaces extending in a generally lengthwise direction of the bar which converge toward a point in the bar, and also surfaces which converge transversely of the bar as they extend backwardly. Since the exposed surface of the entire assembly is reduced to a minimum, there is relatively little opportunity for lint and fly to collect, and the area to be kept clean is greatly reduced. Also, since there are no parts between the greater portions of the holders which project laterally from the supporting bar 2, the assembly is exceptionally convenient for the operator to work around, to thread up, and to perform his other work in the neighborhood of the rings. At the same time this arrangement affords a very convenient opportunity for the use of stationary spacers, in the event that it is desirable to employ them.

The entire rail for one side of a spinning or twister frame may conveniently be made in sections of suitable length for manufacturing and operating purposes, and the adjoining ends of adjacent sections are mounted in brackets provided with sockets to receive the ends of the bars 2. Usually a key-way or slot is cut in each end of the bar to cooperate with a key or set screw in the bracket for the purpose of holding the bar firmly in its operative position. Customarily one end of each bar is clamped securely while the opposite end is allowed some longitudinal freedom but is held against rotative movement around its own axis. The brackets are supported, respectively, on lifter rods which may be operated by any suitable builder motion.

While I have herein shown and described a preferred embodiment of my invention, it will be understood that the invention is susceptible of embodiment in other forms without departing from the spirit or scope thereof.

Having thus described my invention, what I desire to claim as new is:

1. A ring rail for spinning and twister frames comprising a metal bar having a series of segmental slots formed in the side thereof substantially in longitudinal alignment with each other, a series of circular ring holders, the individual holders being set into said respective slots and extending laterally therefrom, the radius of each of said slots being slightly smaller than that of the holders so that the rings bear on the walls of the slots near opposite ends of the latter but are free from contact with intermediate portions of the slots, and screw threaded means for securing the said intermediate free portions of said holders to the bar and serving to draw the holders tightly into their respective slots.

2. A ring rail according to preceding claim 1, in which the portions of said holders entered in said respective slots have a transverse sectional form of a portion of a circle, and said slots have a similar cross-sectional outline but the radii of their circles is slightly smaller than that of the ring holders.

3. A ring rail for spinning and twister frames comprising a metal bar, a series of ring holders mounted on said bar, each of said holders being of annular form and the aperture through the holder being eccentrically disposed whereby the holder is wider at one side than at the other, the wider portions of said holders being mounted in said bar and the bar being slotted at its forward side to receive said portions of the holders, and screw threaded fastenings cooperating with said bar and the respective holders to lock them securely but releasably in the bar.

4. A ring rail for spinning and twister frames comprising a bar having a series of slots extending thereinto from the front side of the bar and located substantially in longitudinal alignment with each other, said slots having upper and lower walls, a series of ring holders set into said slots and extending forwardly from the front side of said bar, and locking means for securing said holders in their respective slots constructed to draw said holders backwardly into seated positions in the slots.

5. A ring rail for spinning and twister frames comprising a bar having a series of curved slots extending thereinto from the front side of the bar and located substantially in longitudinal alignment with each other, said slots having upper and lower walls, a series of ring holders set into said slots and extending forwardly from the front side of said bar, each of said holders having a curved edge to substantially fit into its respective slot and screws projecting forwardly through the rearward portion of said bar and threaded into said respective holders for drawing them rearwardly into said slots and thereby securing them in their operative positions.

6. A ring rail for spinning and twister frames comprising a bar having a series of segmental slots extending thereinto from the front side of the bar and located substantially in longitudinal alignment with each other, said slots having upper and lower walls, a series of ring holders set into said respective slots and extending laterally therefrom at the forward side of said bar, each of said holders having a curved edge portion substantially filling the front end of its respective slot, and screw-threaded means operatively associated with each holder to draw it backwardly into a seated position in said slot.

7. A ring rail for spinning and twister frames comprising a metal bar, a series of ring holders mounted on said bar, each of said holders being of approximately circular outline and having an aperture therethrough eccentrically disposed with reference to said outline, whereby the holder is relatively wide at one side and narrow at the opposite side, said holder being transversely split at the narrow side thereof and the upper marginal portion of the wall of said aperture having a seat therein to receive a spinning ring, said bar being slotted at its forward side to receive the wider portions of said series of holders, and means for releasably securing said holders in said bar.

8. A support for a spinning or twister ring comprising a holder of approximately circular outline and having an aperture therethrough eccentrically positioned with reference to said outline, whereby the holder is relatively wide at one side and narrow at the opposite side, the holder being transversely split at the narrow side thereof, the marginal portion of the wall of said aperture being shaped to provide a seat for a spinning ring and the wider portion of said holder being apertured to receive means for fastening it in its operative position.

9. A ring rail for spinning and twister frames comprising a metal bar having a series of curved slots formed in one side thereof substantially in longitudinal alignment with each other, a series of ring holders each having an edge curved to

substantially fit into one of said slots, the individual holders being set into said respective slots and extending laterally from said bar, and screw threaded means serving to draw said holders backwardly into seated positions in their respective slots and thereby securing them firmly to said bar.

10. A ring rail for spinning and twister frames, comprising a metal bar having a series of slots extending thereinto from one side thereof and located substantially in longitudinal alignment with each other, each of said slots having surfaces converging toward a point in the bar, a series of ring holders having edge portions set into said slots, the body portions of the holders projecting forwardly from the bar, screws extending through portions of the bar and acting on said holders in directions to draw them backwardly into seated positions in their respective slots, said holders having faces cooperating with said converging surfaces to cause said backward movement to guide the holders into firmly seated positions in the bar.

11. A ring rail according to preceding claim 10, in which said converging surfaces extend lengthwise of the bar.

12. A ring rail according to preceding claim 10, in which said surfaces converge both lengthwise of the bar and also transversely thereto.

13. A ring rail for spinning and twister frames, comprising a metal bar having a series of slots extending thereinto from the forward side thereof and located substantially in longitudinal alignment with each other, each of said slots having surfaces converging transversely as they extend backwardly, a series of ring holders having edge portions set into said slots, the body portions of the holders projecting forwardly from the bar, screws extending forwardly through the rearward portions of the bar and acting on said holders in directions to draw them backwardly into seated positions in their respective slots, said holders having surfaces converging transversely as they extend backwardly and said screws lying at acute angles to portions of both of said converging surfaces of the holders to cause said backward movement to cooperate with surfaces of the slots in wedging the holders into firmly seated positions in the bar.

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