Sept. 11, 1923. 1,467,457

D. M. SULLIVAN ET AL

SPINNING MACHINE

Filed Jan. 6, 1923 2 Sheets-Sheet 1

Fig. 1.

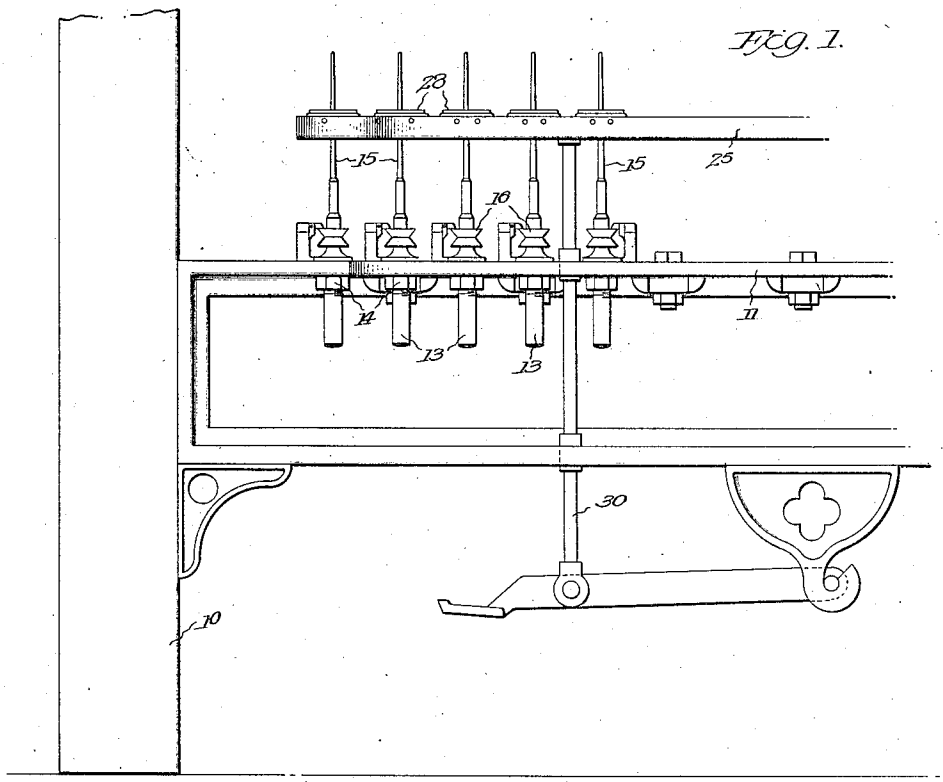
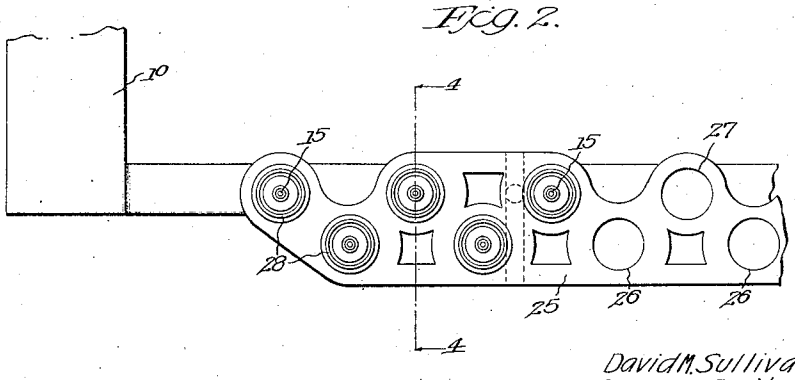


Fig. 2.



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Fig. 3.

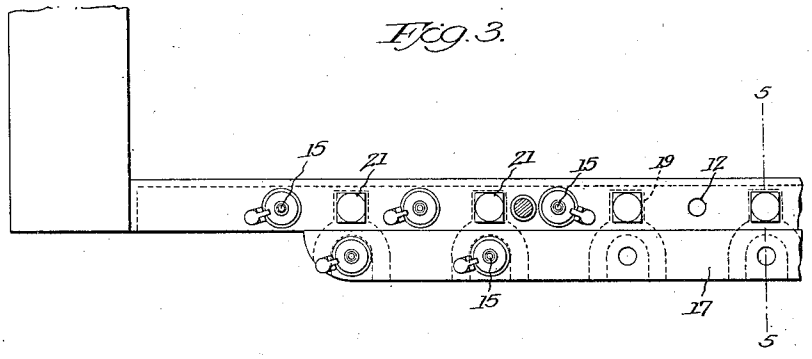


Fig. 4.

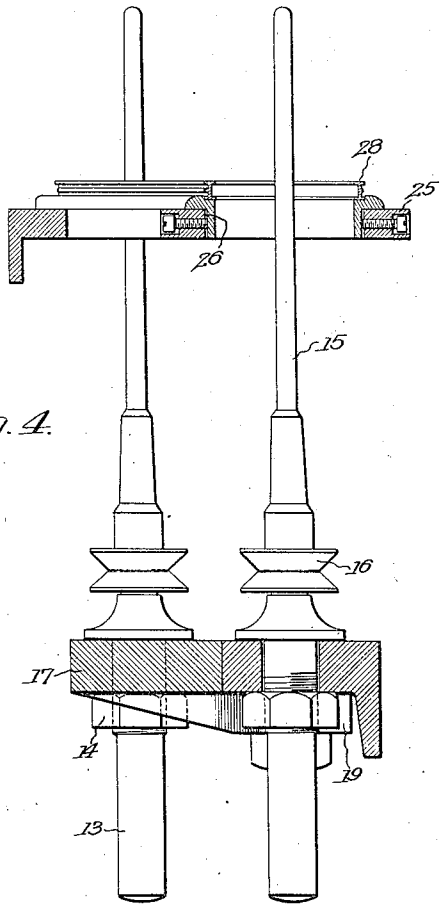


Fig. 5.

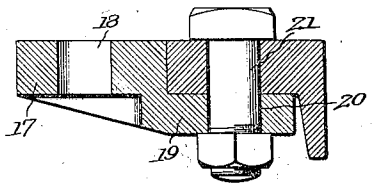
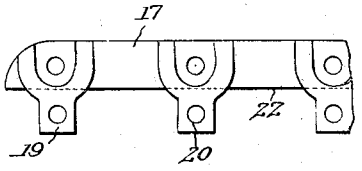


Fig. 6.



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UNITED STATES PATENT OFFICE.

DAVID M. SULLIVAN AND GEORGE W. BAITY, OF GREENSBORO, NORTH CAROLINA.

SPINNING MACHINE.

Application filed January 6, 1923. Serial No. 611,044.

To all whom it may concern:

Be it known that we, DAVID M. SULLIVAN and GEORGE W. BAITY, citizens of the United States, residing at Greensboro, in the county of Guilford and State of North Carolina, have invented new and useful Improvements in Spinning Machines, of which the following is a specification.

This invention relates to spinning machines, and more particularly to the construction of the spindle rail and the arrangement of the spindles thereon.

The invention contemplates an attachment for the usual spindle rail having a series or line of spindles extending longitudinally thereof, and has as its object the provision of means which will permit the spindles to be positioned in staggered relation thereby separating further the adjacent spindles and preventing the entanglement of the threads.

Spindle rails having the spindles arranged in staggered relation are old and well known in the art, but so far as we are aware there has not been provided heretofore an attachment which will enable the spindles to be relatively positioned in this manner upon the ordinary and usual spinning rail having a single line of spindles thereon. The invention comprises, broadly, a rail extension plate having means for supporting a series of spindles adjacent the series of spindles upon the rail and comprising means permitting the extension to be readily secured to the main rail.

More specifically, the invention provides for the elimination of alternate spindles upon the rail and the positioning of these upon the extension plate. The means for securing the extension to the rail is preferably of a character that will permit the ordinary bolster case openings in the rail, and from which the extension plate spindles are removed, to be employed in connecting the extension to the main rail.

A further object of the invention relates to the particular character of the means for connecting the extension to the rail, which preferably affords a composite rail having a smooth and unbroken surface.

In the accompanying drawings there is shown one form of a device in which the invention may be embodied, and in these drawings:—

Fig. 1 is a front elevational view of a portion of a spinning machine,

Fig. 2 is a top plan,

Fig. 3 is a top plan view with the ring rail removed,

Fig. 4 is a cross section on the line 4—4 of Fig. 2,

Fig. 5 is a section on the line 5—5 of Fig. 3, and

Fig. 6 is a bottom plan view of the rail extension.

Referring to the drawings more in detail, 10 indicates, generally, the frame of the machine, which supports a spindle rail 11. In the drawings the illustrated rail is of the usual type having a plurality of openings 12 therein to receive bolster cases 13 which are secured in position by means of locking nuts 14 beneath the rail. The bolster cases and spindles 15, which are driven by means of the whirls 16, are arranged in spaced relation longitudinally of the rail.

In operating such a machine it is found that the threads tend to balloon, and in order to avoid entanglement of the threads being wound upon adjacent spindles various types of strand guarding means are employed. The present invention contemplates a different arrangement of the spindles upon the rail, and for this purpose a rail extension bar 17 is provided and the same has formed therein a plurality of openings 18 adapted to receive bolster cases. The bar 17 carries a plurality of lugs 19 projecting from one edge of the same beneath the spindle rail, the lugs having therein openings 20 which register with several bolster case openings in the main rail. Bolts 21 pass through the registering openings and serve to lock the extension to the main rail with its inner longitudinal edge 22 abutting the face of the rail. It will be noted from an inspection of Fig. 5 that when the extension and rail are held in fixed position a composite rail construction having a smooth, unbroken top surface is provided.

In securing the extension to the rail it is desirable to move a number of the main rail spindles, preferably every other spindle, and these, together with their bolster cases, are positioned in the openings in the extension as shown in Fig. 3. This arrangement provides a series or line of spindles on the extension paralleling the line of spindles on the rail with the spindles of the two series arranged in staggered relation.

By reference to Figs. 2 and 4 it will be noted that the invention includes a common

ring rail for the two series of spindles; the ring rail 25 is formed with two parallel series of openings 26, 27 adapted to receive the travel rings 28 and is operated by the usual pitman 30 constituting part of the actuating mechanism for the machine.

It will be noted that the extension bar may be readily applied to the ordinary machine by simply removing a number of the spindles and bolster cases from the rail. It is not necessary that every other spindle be removed, or that the exact number of securing lugs 20 be provided as indicated in the drawings; however, such a construction affords the staggered relation of the spindles, which is desirable in order to maintain the proper distances between the adjacent spindles.

It should be understood that numerous modifications may be made in the illustrated and described form without departing from the scope of the invention, which is more definitely defined in the following claims.

We claim:

1. An attachment for the usual spindle rail carrying a series of spindles comprising a rail extension having means for supporting a series of spindles in staggered relation to the main rail spindles, and means for securing the extension to said main rail.

2. An attachment for the usual spindle rail carrying a series of spindles comprising a rail extension having means for supporting a series of spindles in staggered relation to the main rail spindles, means for securing the extension to said main rail, and a ring rail common to said main rail and its extension.

3. An attachment for the usual spindle rail adapted to carry a series of spindles, comprising a rail extension and means for securing said extension in position adjacent the main rail, said extension being adapted to support a line of spindles in parallelism with the series of main rail spindles.

4. An attachment for the usual spindle rail adapted to carry a series of spindles, comprising a rail extension and means for securing said extension in position adjacent the main rail, said extension being adapted to support a line of spindles in parallelism with the line of main rail spindles with the spindles upon the rail extension positioned between the spindles of the main rail.

5. A spindle rail extension comprising a bar having a series of openings therethrough and lugs projecting from one side thereof adapted to serve as means for securing the extension to a spindle rail.

6. A spindle rail extension comprising a bar having a series of openings therethrough and lugs projecting from one side thereof adapted to serve as means for securing the extension to a spindle rail, said lugs being offset from the plane of the bar whereby the adjacent edge of the bar may abut the edge of a spindle rail.

7. A spindle rail extension comprising a bar adapted to support a plurality of spindles and means for securing the bar in position adjacent a spindle rail with the edge of the extension bar abutting the edge of the rail to form a smooth rail surface.

8. An extension for a spindle rail having bolster case openings comprising a bar adapted to carry a series of spindles, and lugs extending from one edge of said bar, said lugs having openings adapted to register with the bolster case openings on a spindle rail.

9. An extension for a spindle rail having a plurality of bolster case openings comprising a bar adapted to carry a series of spindles, lugs extending from one edge of said bar and having openings adapted to register with the bolster case openings on a spindle rail, said lugs being offset from the plane of said bar.

10. The combination with a spindle rail having a series of openings to receive bolster cases, of a rail extension secured to said rail and having lugs provided with openings registering with some of the bolster case openings in said rail, said rail extension having a series of openings whereby the extension is adapted to support a plurality of spindles.

11. The combination with a spindle rail and a series of spindles thereon, of a bar secured to said rail with a line of spindles thereon in parallelism with the series of spindles on said rail, said bar having a plurality of lugs extending beneath said rail and serving as means to connect the bar to the rail.

12. The combination in a spinning machine, of a spindle rail, a series of spindles on said rail, the rail having openings therethrough between said spindles, a bar having its edge facing the longitudinal edge of said rail, lugs on said bar projecting beneath the rail and having openings registering with the openings in said rail, fastening means passing through said registering openings, and a series of spindles on said bar paralleling the series of spindles on the rail, the spindles of the two series being positioned in staggered relation.

In testimony whereof we have hereunto set our hands.

DAVID M. SULLIVAN.
GEORGE W. BAITY.