Aug. 16, 1932. J. J. KEYSER 1,871,533

SPINDLE RAIL

Filed Oct. 16, 1929

Fig.1.

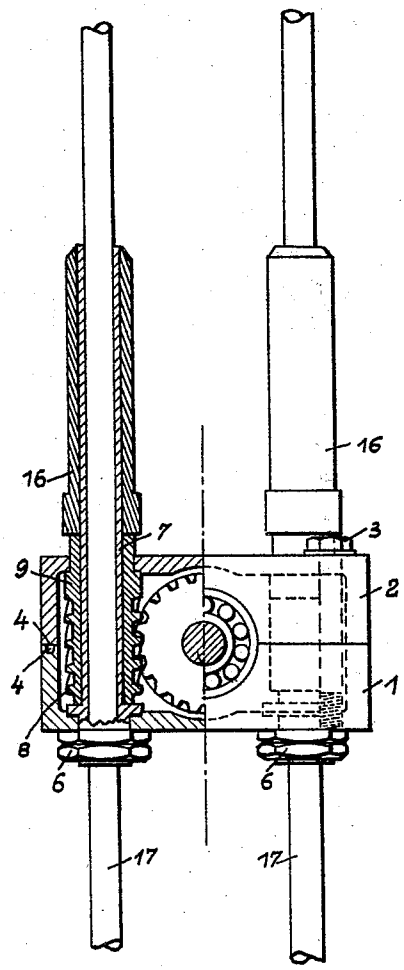
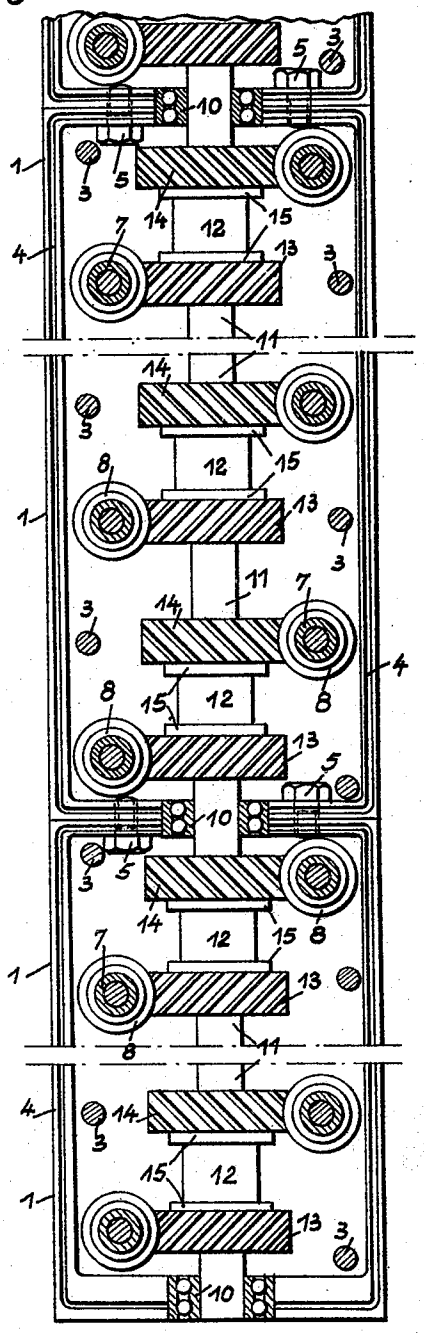



Fig.2.

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# UNITED STATES PATENT OFFICE

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## SPINDLE RAIL

Application filed October 16, 1929, Serial No. 400,011, and in Germany and Switzerland November 5, 1928.

I have filed applications for Letters Patent in Switzerland and Germany on Nov. 5, 1928.

This invention relates to a spindle rail for speed frames, spinning frames, doubling frames, etc., having the spindles arranged in staggered relation to each other.

In the known spindle rail, in which the spindles are arranged in two rows and the driving shaft disposed between these, there is an appreciable disadvantage consisting in the fact that the two rows rotate in opposition to each other, thus causing a very strong axial thrust to be exerted on the driving shaft.

It is the object of the present invention to overcome this drawback, and this is accomplished by the fact that the pitch of the helical gears for operating the oppositely disposed rows of spindles is directed alternately to the left and the right with a view to attaining rotation of the two rows of spindles in the one direction and thus avoiding axial thrust on the main driving shaft—that is to say, the helical gears are furnished alternately with left and right hand pitch.

To facilitate the mounting of the driving shaft and the helical gears for the spindles and the bobbins the spindle rail is divided horizontally, while the bottom and top portions thereof serve as a means of mounting and housing the helical gears.

The invention will now be described more fully with reference to the accompanying drawing, in which

Fig. 1 is a view in part section of a spindle rail for a speed frame (flyer).

Fig. 2 is the plan view, partly in section, of an opened spindle rail.

The spindle rail consists of the lower portion 1, which is divided longitudinally into a plurality of sections, a similarly divided cover portion 2, and screws 3 holding the two parts together. The tight connection between the upper and lower portions 1 and 2 is obtained by means of packing material inserted in grooves 4. The single sections of the lower portion 1 are held together by means of screws 5.

In the lower portion 1, secured by means of nuts 6, are bushes 7, on which run worm sleeves 8, which protrude upwardly through the cover portion 2, are secured against displacement by means of an abutment 9, and serve to drive the bobbins 16. Between the two rows of spindles, running in ball or roller bearings 10, is the driving shaft 11.

Firmly mounted on the driving shaft 11 are muffs 12, and on these are located the helical gears 13 and 14, which are driven by friction or by means of friction couplings. The helical gears 13 and 14 are furnished alternately with left and right hand pitches, so that the axial thrust is mutually balanced. Due to the relatively disposed pitches the worm sleeves 8 and the bobbins 16 are accorded the same direction of rotation.

In the bushes 7 are the shafts 17 for the flyers, which are driven by operating means of any desired kind.

The arrangement as described above may be applied literally to all kinds of spinning machines, in which the spindles are arranged in staggered relation to each other.

It will be understood that no restriction is made to the specific form of embodiment as shown, and that various modifications may be made within the meaning of the above and the appended claim without departing from the spirit of the invention.

What I claim as new and desire to secure by Letters Patent is:

In a spindle rail for speed frames, spinning frames, doubling frames and the like, a casing divided through its medial longitudinal plane, providing upper and lower sections, said sections having complemental bearing members, a drive shaft journalled in said bearing members, said drive shaft having gears thereon, a plurality of spindles mounted in said lower section and each having a worm gear in mesh with a respective gear on said drive shaft, said worm gears having an abutment upon their upper ends for engagement by said upper section, and means for securing said upper section to said lower section whereby to retain the parts in operative relation.

In testimony whereof I have affixed my signature.

JOHANN J. KEYSER.