The principal objects of this invention are to provide a twister or spinning frame with means whereby a pair of spindle supports on each side can carry double the number of spindles usually employed and therefore double the production of the machine to provide an improved drive for the spindles which, of course, will cause them all to rotate in the same direction; and to provide a practical machine which will secure double the production heretofore obtained without anywhere near adding a proportional expense to the building and installing of the machine.

Other objects and advantages of the invention will appear hereinafter.

Reference is to be had to the accompanying drawings, in which

Fig. 1 is a transverse sectional view of an ordinary ring spinning frame with a preferred embodiment of this invention applied thereto;

Fig. 2 is a plan of the drive for the spindles;

Fig. 3 is a plan of the top of the spinning frame at the point and in the direction indicated by the arrow 3 in Fig. 1, and

Fig. 4 is a plan of the delivery rolls and associated parts, as indicated by the arrow 4 in Fig. 1.

The invention is shown as applied to a ring spinning frame, although capable of being applied to a twisting machine in substantially the same way. This spinning frame comprises the main frame 10 which runs longitudinally, of course, the friction rolls 11 and delivery rolls 12 for delivering the thread or yarn to the machine from a supply above. Two spindle supports or rails 13 run the length of the frame 10 and support the spindles on which the bobbins or spools are located as well as the lifter rails 14. The parts just mentioned are duplicated by means of an extra spindle support or rail 15, lifter rail 16, connected with the first lifter rail 14 by a connection 17. Rings 18 and 19, of course, are employed as is usual. The two rails 13 are located near the frame and the parts that go with them. The extra ones are located outside and a pair of spindles 20 and 21 are located with their axes in alignment transverse to the long dimension of the frame 10. On the complete machine the pairs of spindles and associated parts are located near together in this relationship throughout the length of the machine.

The yarn or thread is brought down through the usual pigtails 22 but the extra thread is brought down through a pigtail 23, both located on the longitudinal pigtails support 24 on each side of the machine. The two pigtails 22 and 23 are separated from each other longitudinally so that, when the yarn or thread passes between the friction rolls 11 and the two friction rolls 12, they are kept separate from each other and thereby all entanglement is avoided. Instead of having a thread guide support extending longitudinally, or substituting for it two thread guide supports, as would be the natural course, the thread guides 16 are hinged mounted on transverse thread guide supports 26 secured to the frame 10 and spaced apart. Each thread guide support can take care of four spindles, or the spindles on the supports 13 and 15. These thread guides are hinged on axes transverse to the length of the frame and carry pigtails 27 which guide the thread or yarn to the rings 18 and 19.

Underneath there is the usual cylinder 30 driven in the usual way, not shown, and bands 31, which drive the several spindles, pass around this cylinder so as to get the friction to drive them. Each of these bands passes around an idler 32 and around a pulley 33 which is fixed to the inside spindle, then back over an idler 34, in each case, so that it can pass around the pulley 33 on the outside spindle, driving both spindles in the same direction. This constitutes the drive for the two spindles one on each spindle support 13 and 15. The same band passes over the corresponding pulley 33 on the next spindle on that spindle support 15 and back over an idler 35 carried by the outside spindle support 15. Then it passes over the other pulley 33 on the inside and back across the machine where, of course, the same arrangement is made. In this way all the eight spindles can be driven in the same direction by a single band 31 driven from the cylinder 30. This constitutes a comparatively simple arrangement for running the spindles at high speed.

It will be observed that two spindles, an inside one and an outside one, are arranged as near together as possible with a line connecting their axes perpendicular to the long dimension of the machine. The pigtails guiding the thread or yarn to the bobbins or spools are located on transverse thread guide supports fastened to the frame of the machine and therefore comparatively rigid. This avoids the long rail usually employed and the vibration due to its length. The yarn or thread is guided so that it cannot cause any entanglement and the spindles are driven by compact arrangements.

Having thus described my invention and the advantages thereof, I do not wish to be limited to the details herein disclosed, otherwise than as set forth in the claims, but what I claim is:
A drive for the spindles of a spinning frame or twisting machine comprising a main driving cylinder, two rails on each side thereof, a set of spindles on each rail, a pulley on each of the spindles to be driven, an idler for each pair of spindles, all of said idlers being located on the inner sides of the two rails respectively, and a single driving band passing around said cylinder and all of said pulleys, whereby the driving band will drive two sets of pulleys and spindles on each side of the machine, all in the same direction.

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