Aug. 16, 1949. J. A. KOOISTRA 2,479,497

SPINNING FRAME

Filed June 16, 1948

Fig. 1.

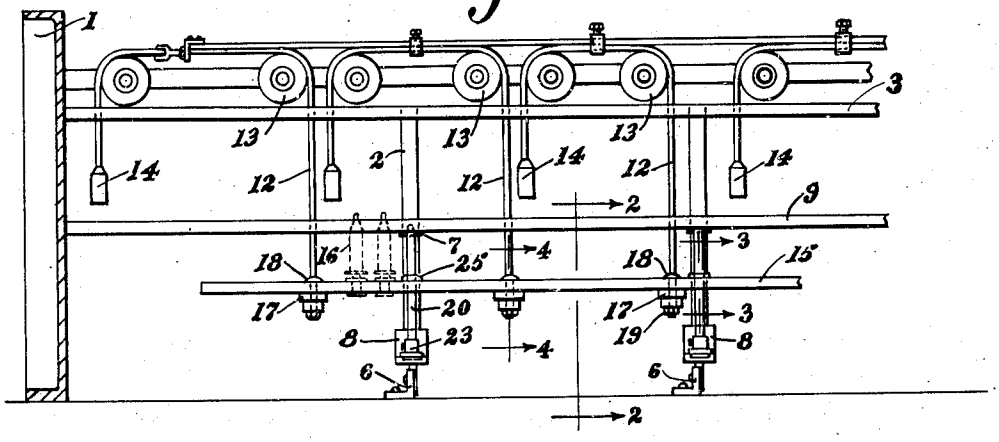


Fig. 2.

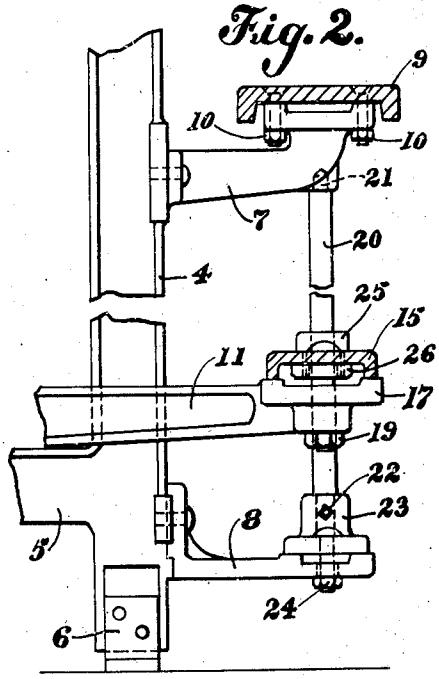


Fig. 3.

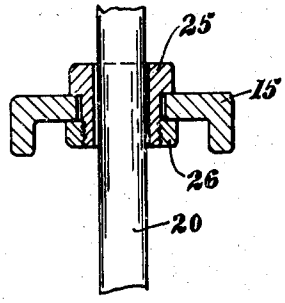
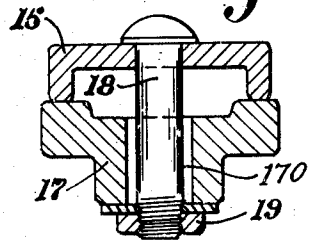


Fig. 4.



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SPINNING FRAME

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3 Claims. (Cl. 57—137)

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This invention relates to a spinning frame of the ring type in which a row of cooperating rings and spindles is provided at each side of the frame and in which a relative vertical movement takes place between the rows of rings and the rows of spindles in effecting the operation of the machine.

The object of the invention is to provide for accurate relative vertical movement of the rings and spindles, to do this with means which will allow free access beneath the machine so as not to interfere with cleaning operations, and to enable the maximum traverse or relative vertical movement to be secured with any given height of frame.

The nature and objects of the invention will appear more fully from the accompanying description and drawings and will be particularly pointed out in the claims.

Since the invention relates to but one feature of the spinning frame, it is only necessary to illustrate and describe such portions of a spinning frame with which the invention is particularly concerned. The invention is conveniently illustrated in connection with a standard type of spinning frame such, for example, as shown in the patent to Owen No. 1,842,565 granted January 26, 1932. In such a frame the spinning rings are mounted on rail sections at each side of the frame in fixed vertical position while the spindles are mounted on rail sections at each side of the frame connected by transverse arches given a vertical movement to cause the spindles to cooperate with the rings in the spinning operation. But in the broader scope of the invention it is immaterial whether the ring rail sections are fixed and the spindle rail sections vertically movable, or vice versa.

The drawings also, for the purpose of clearly illustrating the details of a preferred construction of the invention, show some of the elements out of their proper proportion with respect to other elements, but since the general construction and operation of these spinning frames is well known to those skilled in the art, the proper proportions will readily be determined.

In the drawings,

Fig. 1 is a side elevation of a portion of one end of a spinning frame illustrating a preferred form of the invention and those portions of the frame necessary to the disclosure thereof;

Fig. 2 is an enlarged view of a detail partially in cross section taken on the line 2—2, Fig. 1;

Fig. 3 is a similar enlarged detail in cross section taken on the line 3—3, Fig. 1; and,

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Fig. 4 is a similar enlarged detail taken on the line 4—4, of Fig. 1.

A spinning frame comprises end sections, with a portion of the left hand end section 1 only being shown, and a plurality of spaced intermediate skeleton frame sections 2 extending transversely of the main frame. These end and intermediate frame sections are connected as usual by suitable beams or girts such as 3 extending longitudinally of the frame.

A portion of one of the intermediate frame sections 2 is shown in Fig. 2. At each side of the spinning frame this intermediate section presents a vertical frame member 4, the one at the side shown in Fig. 1 being illustrated with the connection 5 extending therefrom back to the other side. At the bottom these intermediate sections are supported directly on the floor usually by L-shaped foot pieces 6 bolted thereto.

Each one of these vertical frame members 4, in this invention, has secured thereto an upper bracket 7 and a lower bracket 8. These brackets are conveniently secured in place by being clamped and bolted to the usual flanges of the vertical frame members 4. In the construction illustrated where the ring rails are fixed and the spindle rails movable, the ring rail sections 9 are rigidly supported on the upper brackets 7 and extend longitudinally at each side of the spinning frame. As illustrated in Fig. 3 each ring rail section 9 is seated upon the upper face of the brackets 7 and held in place by bolts 10.

These rail sections are of the usual construction, provided with the usual spinning rings mounted in the usual manner concentric with apertures spaced longitudinally of the rail sections as required by the number of spinning elements.

The spindle rail sections in this type of spinning frame, and as illustrated in the aforesaid patent to Owen, are given their vertical movement by a plurality of vertically moved transverse arches extending across the frame and supporting at each end the spindle rail sections. One end 11 of one of these transverse arches is as shown in detail in Fig. 2. The number of these transverse arches depends in general upon the length of the spinning frame, one or more being placed between each end frame and the next intermediate frame section, and one or more between each pair of intermediate frame sections. These transverse arches are given the required vertical movement by any suitable means such as the flexible connectors 12 extending therefrom over the pulleys 13, operated by the usual mech-

anism in one direction and by the counterbalances 14 in the other.

Each spindle rail section 15 has mounted thereon the usual spindles carrying bobbins 16, driven by the usual means and cooperating with the spinning rings in the spinning rail sections, the construction being the same at each side of the spinning frame.

The connection between a spinning rail section 15 and the end 17 of one of the transverse arches 11 shown in Fig. 4, provides a simple means for a relative adjustment between the rail section and the end of the transverse arch. As illustrated a bolt 18 clamps the rail section 15 to the end 17 of the transverse arch with this bolt passing through an enlarged aperture 170 in the end 17. Thus the relative position of the rail section with respect to the end of the transverse arch may be adjusted and then the bolt clamped up by the nut 19 to hold the parts firmly in adjusted position.

The vertical movement of the spindle rail sections is accurately guided by means of vertical guide rods positioned at each side of the spinning frame with these guide rods alined respectively with the vertical frame members and extending between the lower and upper brackets secured thereon. One of these guide rods 20 is illustrated in Fig. 2 thus alined with and supported from one of the vertical frame members 4. At its upper end the guide rod 20 is provided with a reduced end 21 seated in a bore in the upper bracket 7. At its lower end it is clamped by a set screw 22 in a foot piece 23 seated on the upper face of the bracket 8. This foot piece is clamped to the bracket 8 by one or more bolts 24 passing through enlarged apertures in the bracket 8 so that the foot piece may be shifted in any radial direction to bring the guide rod into exact vertical position.

Each guide rod 20, as shown more in detail in Fig. 3, passes through a bushing 25 secured in the spindle rail section 15. This bushing has a sliding fit on the guide rod and passes through a slightly enlarged aperture in the rail section so as again to enable accurate adjustment to be made between the rail section and the guide rod. The bushing 25 is conveniently shown as having an upper flange seated on top of the rail section and a screw threaded lower end carrying a nut 26 enabling the bushing to be clamped firmly to the rail section in adjusted position.

It will thus be seen that these spindle rail sections at each side of the spinning frame are accurately guided in their vertical movement by the guide rods and that, since the bushings which slide on the guide rods are located entirely in the rail sections, they are of short length and cannot tip and bind on the guide rods during the vertical movement. Moreover, the guide rods and their supports, being positioned in alinement with the vertical frame members 4, do not obstruct the spaces between the end frames and the intermediate frame sections and between the

intermediate frame sections so that ready access may be had for cleaning beneath the spinning frame. Furthermore, it will be seen that the downward traverse of the spindle rail sections is limited only by the engagement of the bottom of the spinning rail with the foot pieces 23 on the lower brackets 8 which are positioned close to the floor. Thus the maximum traverse may be secured.

Having thus described the invention, what is claimed as new, and desired to be secured by Letters Patent, is:

1. In a spinning frame having a plurality of vertical frame members at each side, a plurality of vertically movable transverse arches extending between pairs of the vertical frame members at each side, a pair of ring rail sections one at each side of the frame, and a pair of spindle rail sections one at each side of the frame, the combination of upper and lower brackets on the said vertical frame members, a plurality of said vertical guide rods each alined with one of the vertical frame members and extending between the lower and upper brackets thereon, one pair of said rail sections being rigidly supported on the upper brackets, the other pair being supported on the ends of the transverse arches, and bushings mounted in the latter pair of said rail sections one on each guide rod and having a sliding fit thereon.

2. In a spinning frame having the construction and combination of elements defined in claim 1, the combination therewith of means for adjusting the lower end of each guide rod radially in its lower bracket and means for relatively adjusting each end of the transverse arches with respect to the rail sections supported thereby to insure accurate vertical movement of the rail sections.

3. In a spinning frame having a plurality of vertical frame members at each side, a plurality of vertically movable transverse arches extending between pairs of the vertical frame members at each side, a pair of ring rail sections one at each side of the frame, and a pair of spindle rail sections one at each side of the frame, the combination of a plurality of said vertical guide rods each alined with one of the vertical frame members and supported therefrom, one pair of said rail sections being rigidly supported from said vertical frame members, and the other pair being supported on the ends of the transverse arches and guided in their vertical movement by said guide rods.

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REFERENCES CITED

The following references are of record in the file of this patent:

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Number	Name	Date
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