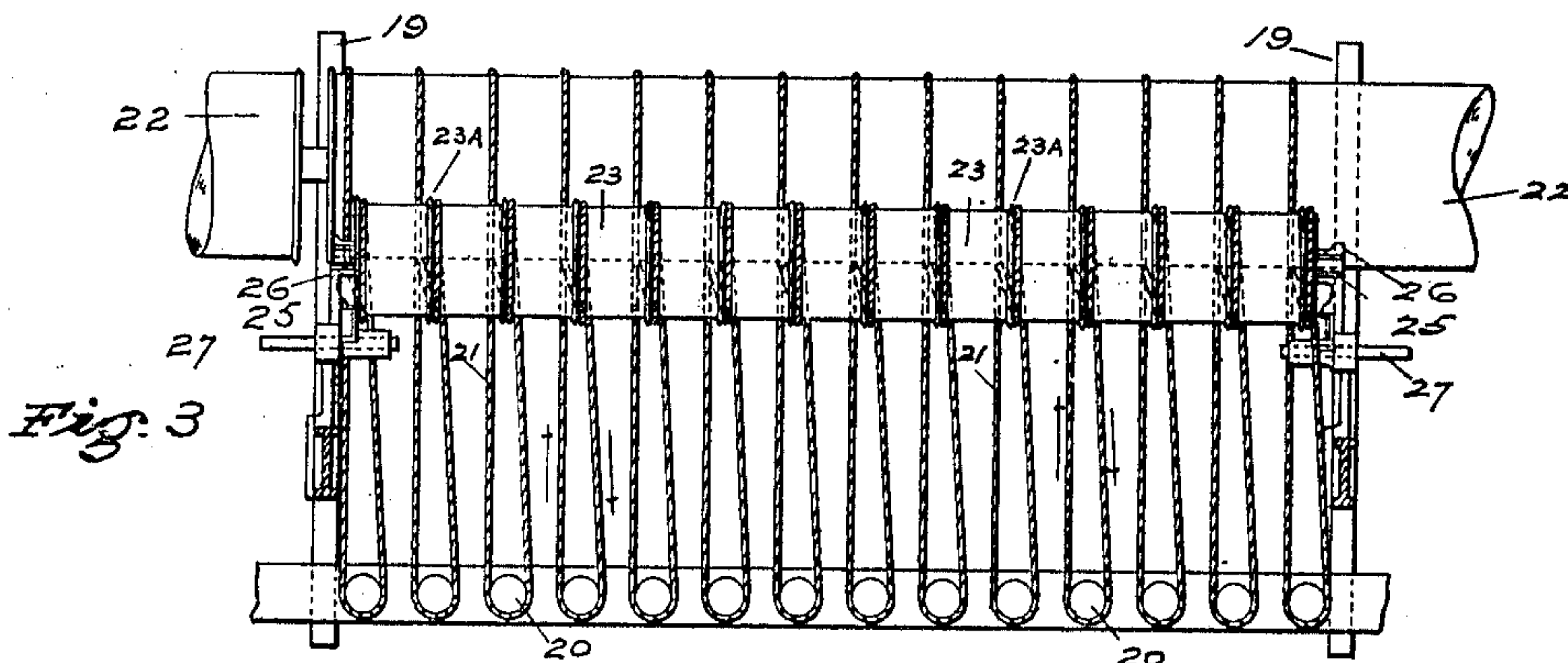
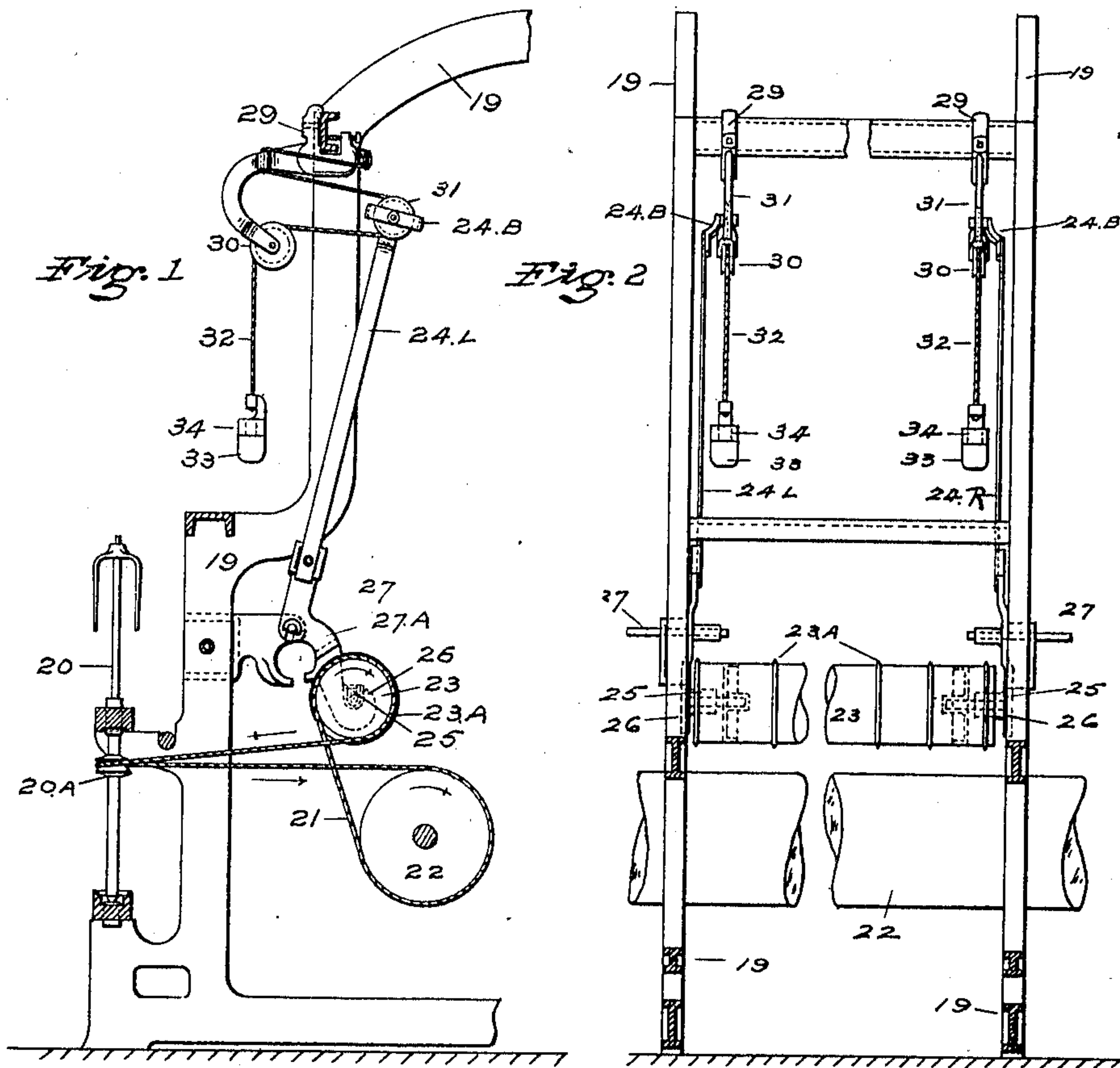


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MECHANISM FOR GUIDING AND TENSIONING SPINDLE DRIVING BANDS.
APPLICATION FILED DEC. 23, 1907.

969,768.

Patented Sept. 13, 1910.

3 SHEETS—SHEET 1.



WITNESSES
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L. H. Grote

INVENTOR
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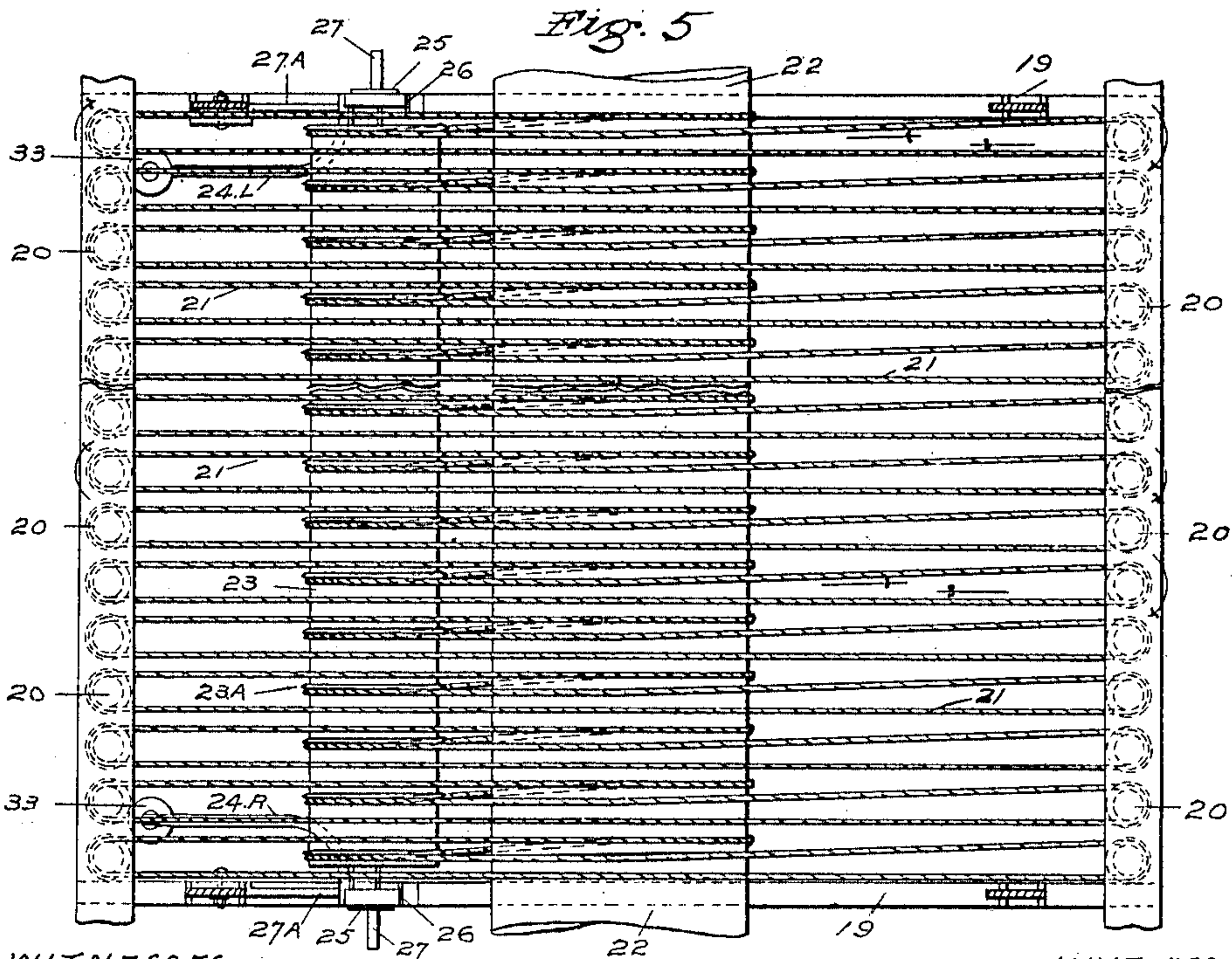
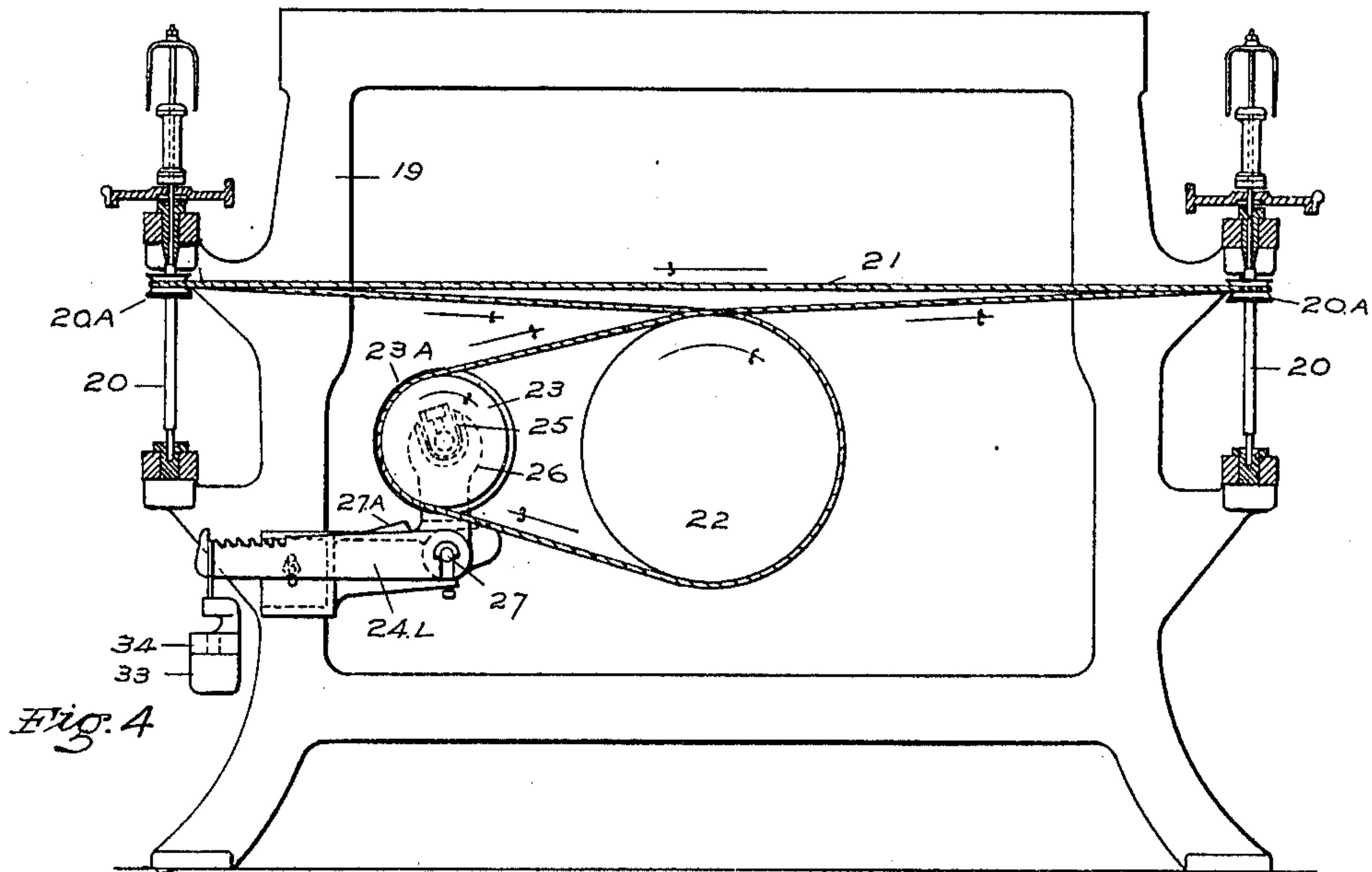
Howson and Howson
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3 SHEETS—SHEET 2.



WITNESSES
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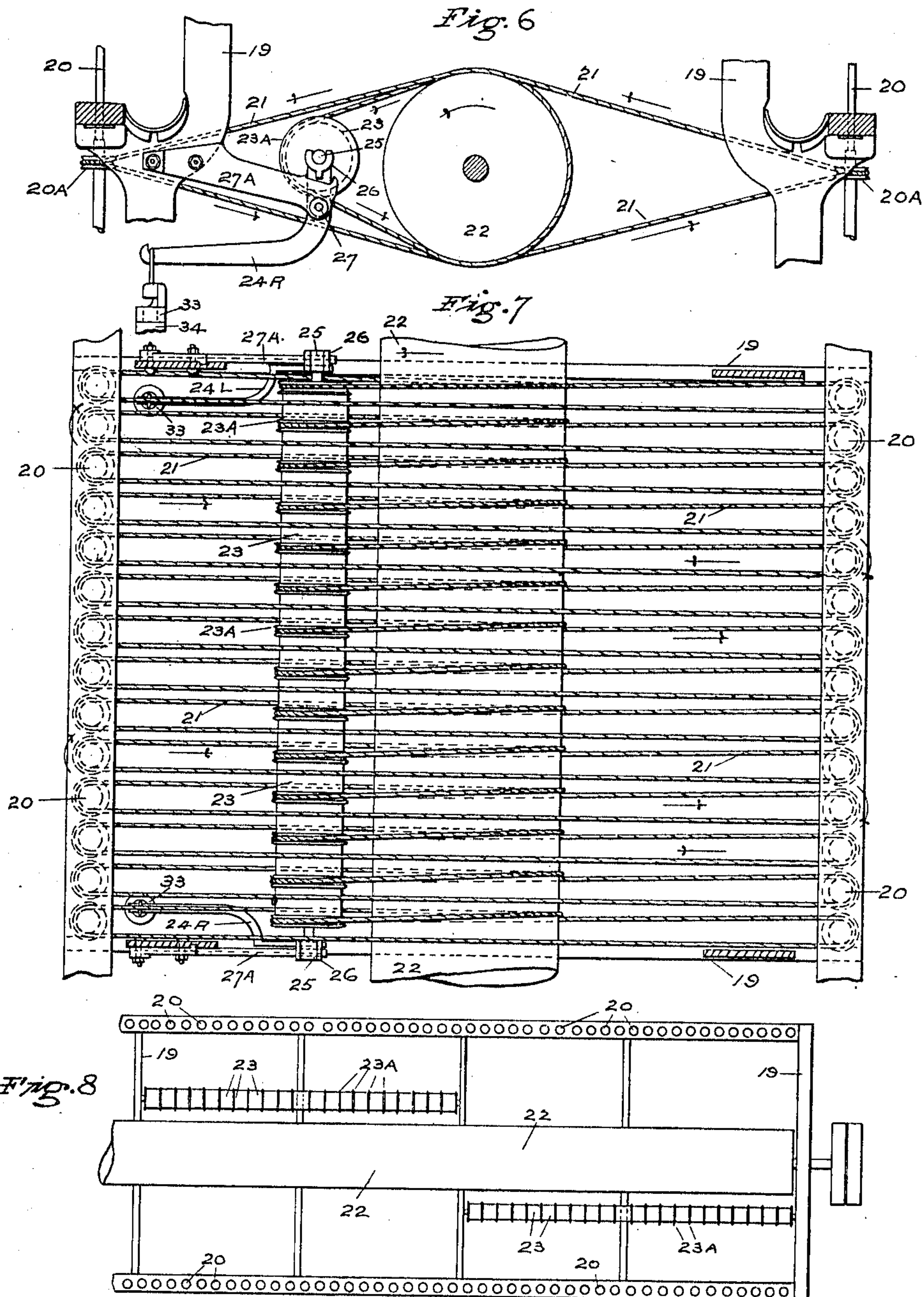
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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

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AND JAMES SCOTT & SONS (LIMITED), BOTH OF DUNDEE, SCOTLAND.

MECHANISM FOR GUIDING AND TENSIONING SPINDLE-DRIVING BANDS.

969,768.

Specification of Letters Patent. Patented Sept. 13, 1910.

Application filed December 23, 1907. Serial No. 407,847.

To all whom it may concern:

Be it known that I, JOHN BOYD, a subject of the King of Great Britain and Ireland, and residing in Bothwell, county of Lanark, Scotland, have invented an Improved Mechanism for Guiding and Tensioning Spindle-Driving Bands, of which the following is a specification.

This invention relates to spinning, twisting, winding and similar machines and has for its object to provide an improved device for guiding and tensioning a number of separate bands with one apparatus (instead of using a separate guiding and tension apparatus for each band) whereby a regular rotary motion is imparted to the spindles and a uniform twist is imparted to the fibrous material which may be twisted thereby.

The invention consists mainly in using in combination with the main driving cylinder actuating said bands, an auxiliary tensioning cylinder provided with one or two circular projecting ribs for laterally guiding each band, such tensioning cylinder being carried by two independent pivoted levers for the purpose of actuating, guiding and tensioning said bands in an improved manner.

Figures 1, 2 and 3 are respectively a vertical section, a front view, and a plan view of so much of a dry spinning frame as is necessary to illustrate the application of the invention to a frame having spindles on one side only of a main driving cylinder, each spindle driven by a separate driving band. Figs. 4 and 5 are respectively a vertical section and a plan view of as much of a wet linen spinning frame as is necessary to illustrate the application of the invention to a frame having spindles on both sides of a main driving cylinder when the top of the driving cylinder is slightly under the centers of the spindle whirls on each side and when every two opposite spindles are driven by one separate band. Figs. 6, 7 and 8 are respectively a vertical section, a plan view, and a plan to a smaller scale of as much of a similar spinning frame as is necessary to illustrate the application of the invention to a frame having spindles on both sides of a main driving cylinder when the center of the latter is in line or nearly in line with the centers of the spindle whirls on each side

and when every two opposite spindles are driven by one separate band.

In one embodiment of the invention (Figs. 1, 2 and 3) as applied to an ordinary dry spinning frame 19 having spindles on one side only of its main driving cylinder a number of spindles 20 are each driven by single bands 21 of equal length (and preferably by what are known as double loop hooked bands) from a cylinder 22. The top of the cylinder 22 is preferably in a plane with the center of the V-shaped grooves of the spindle whirls 20^A as shown in Fig. 1. Each band 21 is passed around one of the whirls 20^A, then to the top of and around the cylinder 22, then upward in front of and over and around the ribbed tensioning cylinder 23 on the opposite side of one of a number of ribs 23^A (one rib in this case being provided for each spindle band) and back toward the spindle whirl 20^A where the two ends of the band can be joined. The cylinder 23 is placed preferably in front of and above the cylinder 22 for the purpose of tensioning each band and also by its ribs 23^A laterally guiding each band 21 so as to keep the parts of the band passing around the cylinder 22 and around the cylinder 23 clear of one another when running. Each cylinder 23 is carried preferably by two separate vertical right and left pivoted swinging levers 24^R and 24^L.

The end gudgeons of the cylinder 23 are sustained by and run in oscillating bushes 25 carried in open gabs 26, formed in the levers. The levers 24^R and 24^L are fulcrumed on pivots 27, held by brackets 27^A, secured to the framing 19. When two or more sets of the apparatus are used for driving a large number of spindles 20 all on one side of a cylinder 22, the pivots 27, on which the levers 24^R, 24^L, are pivoted project on each side of their brackets 27^A and on these the contiguous levers 24^R, 24^L are centered. Two top rail brackets 29, carrying cord pulleys 30, 30, are provided for each pair of levers 24^R, 24^L. Secured to tops of latter are brackets 24^B, 24^B carrying pulleys 31. Cords 32, preferably plaited cords, connected to the brackets 29 are carried around the lever pulleys 31 and the top bracket pulleys 30, and to the ends of the cords 32, weights 33 and adjustable

weights 34 are suspended so as to cause the cylinder 23 to act with sufficient outward and upward tensioning strain on all the bands 21 passing around the cylinders 22 and 23 by which the spindles 20 are driven.

In a second embodiment of the invention (Figs. 4 and 5) as applied to a section of a wet linen spinning frame 19 a number of spindles 20 on both sides of the frame are driven by long bands 21 of equal length from a central driving cylinder 22. The top of the cylinder 22 in this case is slightly under the centers of the V spindle whirls 20^A on each side and each band 21 is used for driving two opposite spindles 20. In banding the spindles each band 21 is passed around a spindle whirl 20^A on the right side, then around the opposite spindle whirl 20^A on the left side of the frame, then over and around and under the cylinder 22 and around in front of one of the circular projecting ribs 23^A of the cylinder 23, then over the cylinder 22 and back toward its first spindle 20 where the two ends of the bands are joined.

In a third embodiment of the invention (Figs. 6, 7 and 8) as applied to an ordinary wet linen spinning frame 19, a number of spindles 20 on both sides of a frame are driven by bands 21 of equal length from a central driving cylinder 22. The center of the cylinder 22 is in or nearly in a parallel line with the centers of the spindle whirls 20^A on each side and each band 21 is used for driving two opposite spindles 20. In banding the spindles each band 21 is passed around a spindle whirl 20^A on the right side of the frame, over the cylinder 22, around the second spindle whirl 20^A on the left side of the frame, under, around and over the cylinder 22, around the cylinder 23 between two of its projecting ribs 23^A (two ribs being shown for guiding each band) and again under the cylinder 22 and back to the first spindle where the two ends of the band

are joined. When two or more sets of this embodiment are used for driving a large number of spindles 20, different sets of the apparatus may be fixed on opposite sides of the cylinder 22 so as to reduce the strain on the latter, as shown in Fig. 8 in which only one rib 23^A is shown for each band 21.

With this guiding and tensioning apparatus as shown in Figs. 1, 2 and 3 two spindles 20 may be driven in the same direction by one longer band 21. Likewise with apparatus such as shown in Figs. 4 and 5 and in Figs. 6 and 7 four spindles 20 *i. e.* two spindles on each side of frame, may be driven by a longer band 21.

The ribs 23^A of the tensioning cylinder 23 may be formed on or secured to the cylinder, and may be made solid or made out of thin metal.

I claim as my invention:

1. In a machine of the type described, a hollow tensioning cylinder made of thin metal and provided with guide ribs spaced apart for the spindle driving bands, said ribs being independently formed out of thin metal and spaced apart along the length of said cylinder in accordance with the number of bands to be guided thereby, substantially as described.

2. In a machine of the character described, a hollow tensioning cylinder of thin metal provided with guide ribs, triangular in cross section and spaced apart, for the spindle driving bands, said ribs being independently formed out of thin metal and arranged along the length of said cylinder in accordance with the number of bands to be guided thereby.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses.

JOHN BOYD.

Witnesses:

JAMES CUNNINGHAM,
JAMES ROBERTSON.