

No. 765,913.

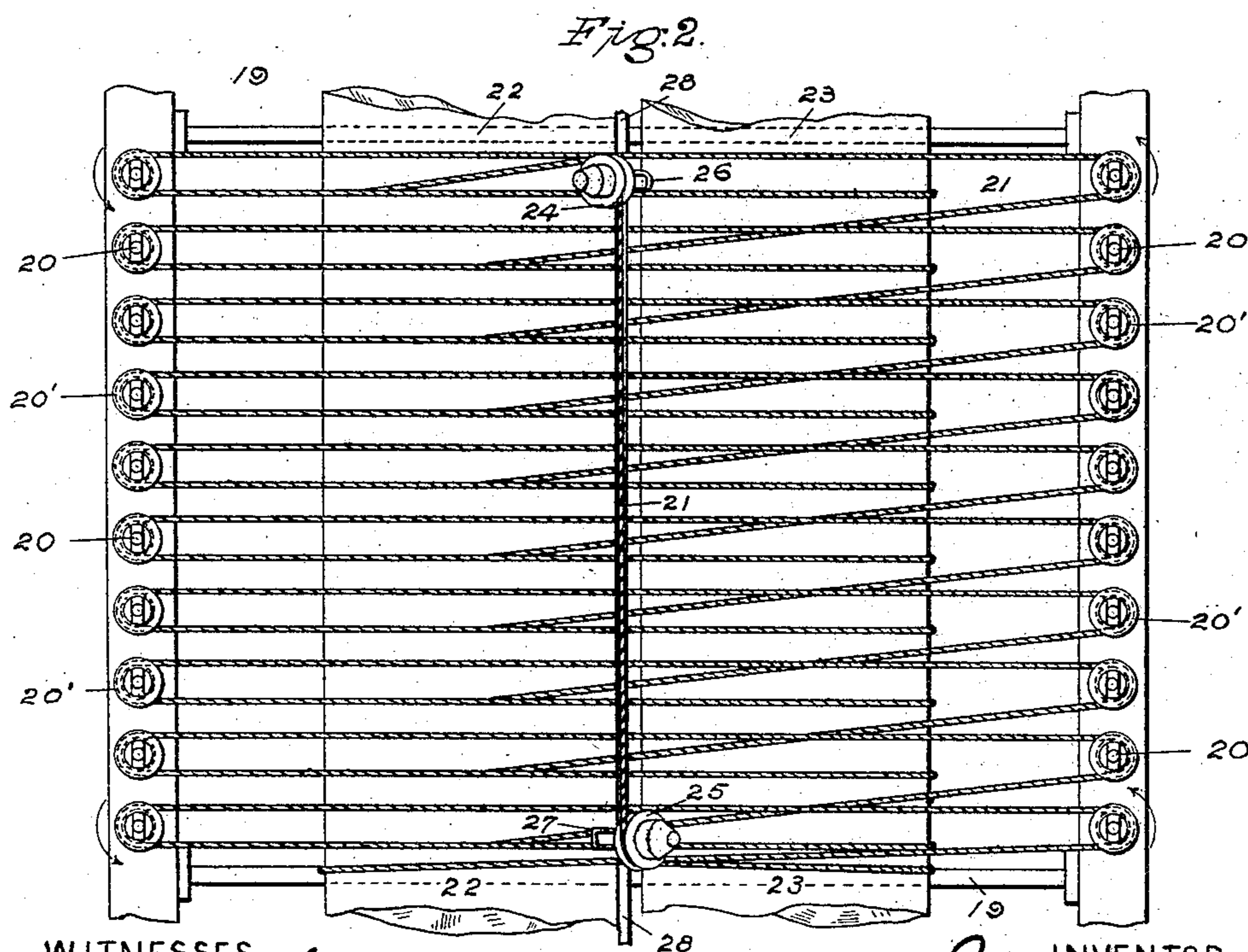
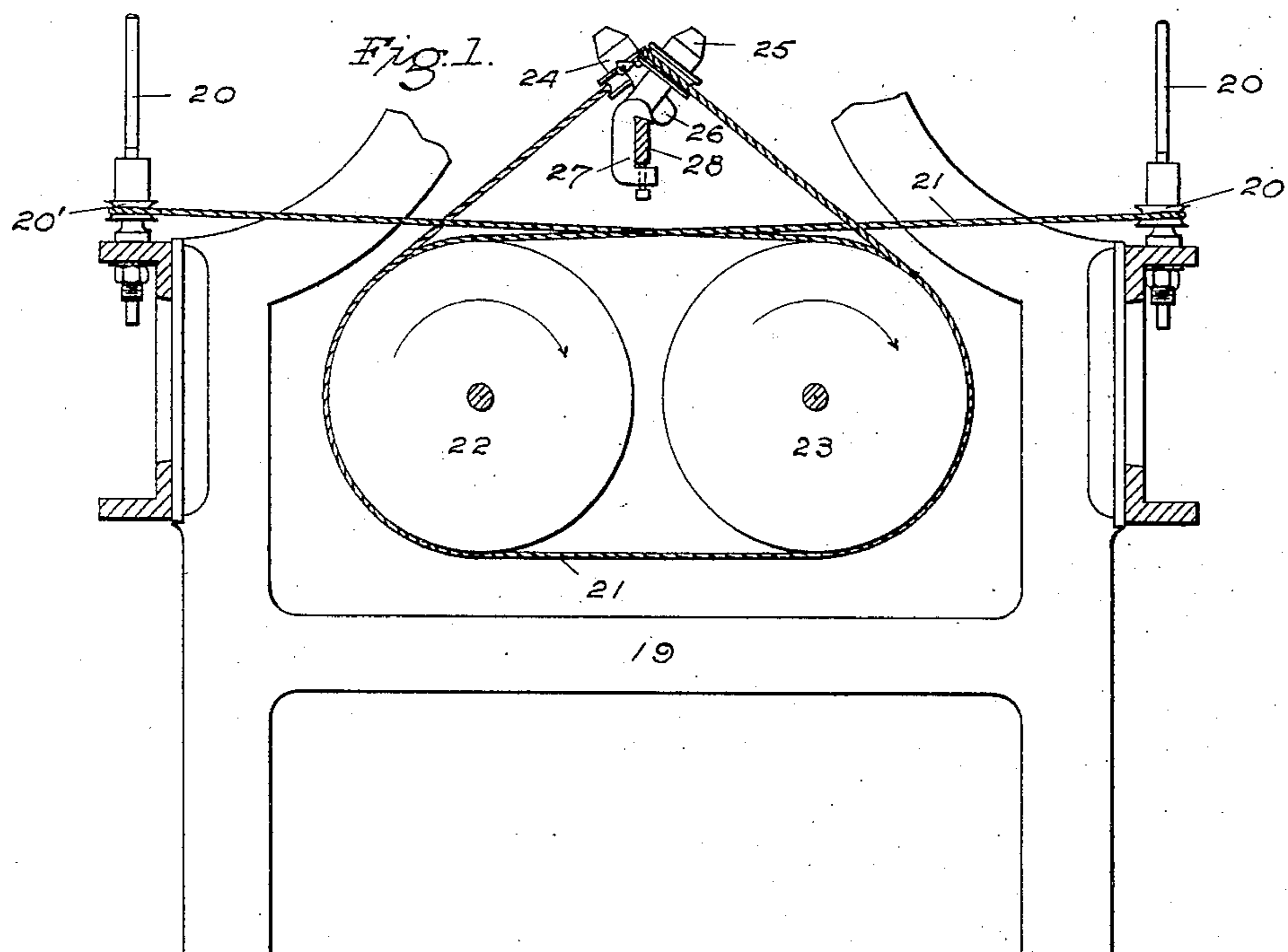
PATENTED JULY 26, 1904.

J. BOYD.
MECHANISM FOR DRIVING FLIER OR LIKE SPINDLES OF SPINNING,
TWISTING, WINDING, OR LIKE MACHINES.

NO MODEL.

APPLICATION FILED AUG. 31, 1903.

2 SHEETS—SHEET 1.



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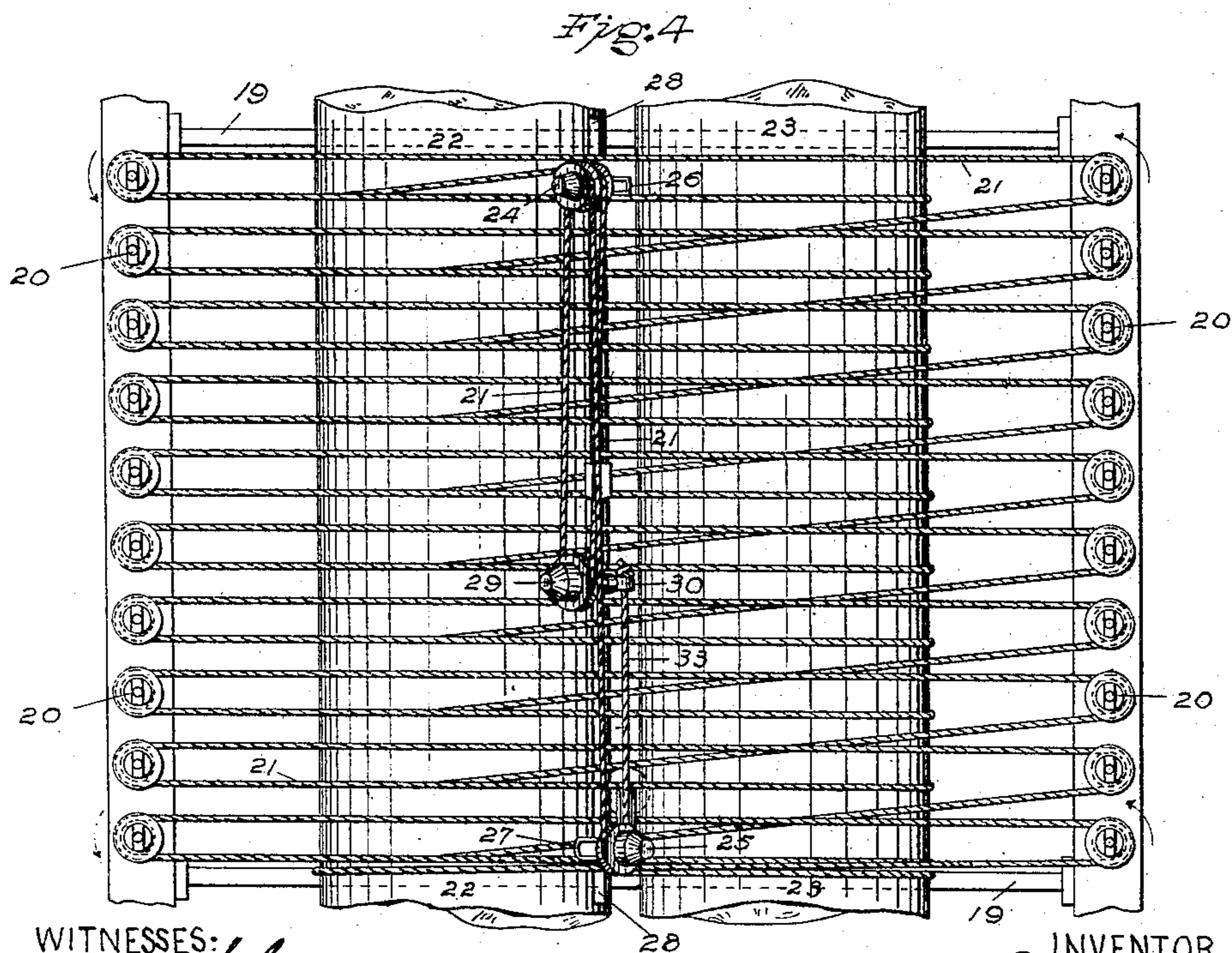
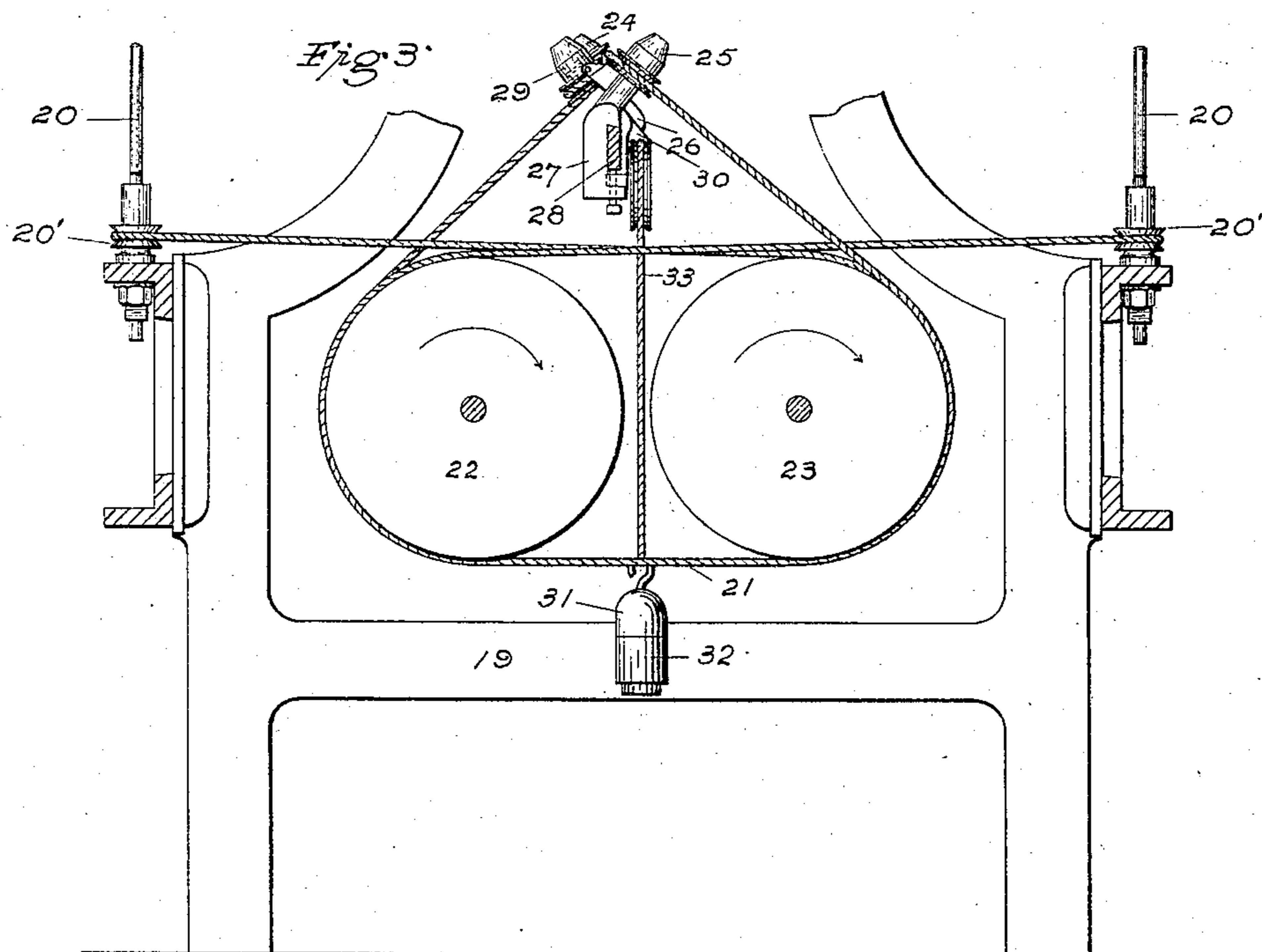
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2 SHEETS—SHEET 2.



WITNESSES:

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UNITED STATES PATENT OFFICE.

JOHN BOYD, OF BOTHWELL, SCOTLAND.

MECHANISM FOR DRIVING FLIER OR LIKE SPINDLES OF SPINNING, TWISTING, WINDING, OR LIKE MACHINES.

SPECIFICATION forming part of Letters Patent No. 765,913, dated July 26, 1904.

Application filed August 31, 1903. Serial No. 171,440. (No model.)

To all whom it may concern:

Be it known that I, JOHN BOYD, a subject of the King of Great Britain and Ireland, residing at Bothwell, county of Lanark, Scotland, have invented Improvements in Mechanism for Driving Flier or Like Spindles of Spinning, Twisting, or Like Machines, of which the following is a specification.

This invention comprises improvements designed for spinning, twisting, winding, and similar machines for fibrous material, and pertains particularly to an improved combination of mechanism for driving spindles of said machinery by which all the spindles on both sides of a frame, or in sections thereof, are driven by one long endless band; and the invention consists, mainly, in using two long central driving-cylinders working side by side, which may be made the whole length of the frame to actuate one or a number of such bands, each band being employed to drive a number of spindles on both sides of the frame, each band being provided with two or more stationary guide-pulleys to bring back latter to the place from which it starts and when necessary (as it is in most cases) to use also in combination with same a movable tension-pulley or some other mechanism for the purpose of tensioning each band, whereby a more uniform speed and driving power is imparted to all the spindles (or in case of dead-spindles to the tubes or fliers which work thereon) the wear and tear of bands is reduced, extra expenditure of power due to overtight bands is prevented, and a uniform twist is imparted to any fibrous material which may be spun thereby.

In order more fully to describe my improvements and to show how they may be carried into effect, I will describe their application, as shown in two accompanying sheets of drawings.

On Sheet 1, Figure 1 is a vertical section of so much of a spinning-frame as is necessary to illustrate certain parts of one modification of my invention, and Fig. 2 is a plan view of same. On Sheet 2, Fig. 3 is a vertical section, and Fig. 4 a plan view of another modification.

In the drawings the same reference-numer-

als are used to mark the same or like parts wherever they are repeated.

In the construction illustrated in Figs. 1 and 2, Sheet 1, I have shown my improved mechanism as applied to a section of an ordinary ring-spinning frame 19, having ten spindles 20 on each side, all driven by one long endless band 21, actuated by two central horizontal driving-cylinders 22 and 23, placed side by side and by preference in relation to one another and to the spindles on each side (as it so happens) exactly as they are usually placed in frames of this class when each spindle is driven by its own band, and so making my present improved method of driving a number of spindles by one long endless band very easy to apply to such frames. The cylinders 22 and 23 are sufficiently under the center of the pulleys 20' of the spindles 20 on each side to prevent the running-band 21 as it goes between latter from coming in contact with the tops of the cylinders 22 and 23 and also to keep all the parts of the band clear of one another where they cross each other's path. In banding the spindles 20 from the beginning to the end of any section of the frame which the band drives it is first by preference passed once round the two cylinders 22 and 23 and then alternately round two opposite spindles 20 and round the outsides of the two cylinders 22 and 23 till the last two spindles of the section are banded, after which it is taken once more round the two cylinders and round two stationary guide-pulleys 24 and 25, placed at opposite ends of the section, and back to the starting-point, when its two ends are fastened together after being drawn sufficiently tight. Both cylinders are driven in one direction, and the band 21 by the use of the two cylinders 22 and 23, placed side by side, instead of one cylinder, as shown in Fig. 1, Sheet 1, in British Patent No. 18,860 of 1901, has a better run between the spindles 20, and the cylinders 22 and 23 give a more powerful and regular drive to the spindles and without unduly lowering the cylinders 22 and 23 and without the aid of an auxiliary angled cylinder 23, as shown in Fig. 3 of specification above referred to, or the use of "coned" pulleys, claimed in British Patent No. 17,795

of 1900, to guide and keep the coils of the band 21 clear of one another and also keep it from lapping. The stationary guide-pulleys 24 and 25 used are by preference similar to what are described in the British Patent No. 18,860 of 1901, referred to, running in adjustable oil-cup-socket brackets 26 and 27 and carried on a longitudinal bar 28, placed, preferably, in a central position above the two driving-cylinders 22 and 23, it being possible in favorable circumstances and with a band of sufficient elasticity to drive a number of spindles to advantage, as described, without the aid of a tension apparatus.

In the modification illustrated in Figs. 3 and 4, Sheet 2, I have shown my improved mechanism as applied to a section of a similar frame provided with a tension-pulley apparatus to regulate the tension of the band 21. The spindles 20, the band 21, the two central cylinders 22 and 23, the stationary guide-pulleys 24' and 25, their oil-cup-socket brackets 26 and 27, and the longitudinal bar 28, carrying same, are shown in the same position; but in this case one of the stationary guide-pulleys, 24', used is a double-grooved pulley, same as shown in Figs. 6, 9, 10, and 13 of the British Patent No. 18,860 of 1901, referred to, and a tension-pulley 29 is provided, running in an oil-cup socket of a tension-carriage 30, the latter being pulled along the bar 28 by a clock-spring apparatus or by the action of adjustable weights 31 and 32 on a cord 33, connected to the carriage for the purpose of tensioning the band 21, all as described in British specification referred to.

Instead of the guide and tension pulley brackets of my improved mechanism being carried on a longitudinal bar the latter might in some cases be dispensed with, and the guide-pulley brackets might be fixed to some convenient part of the frame and the tension-carriage when latter is used made to move

on a longitudinal rail of the frame or on a longitudinal bracket fixed to same.

Flat as well as round bands, if not too broad, can be used with my improved mechanism, as shown in Figs. 1 to 4, if the spindle-pulleys 20' and the guide and tension pulleys are made suitable for same and if in case of broad bands an extra guide-pulley is supplied to lead the flat band back to or from the top of the cylinder.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is—

1. In mechanism for driving spindles of spinning, twisting, winding and like machines the combination with two long central and parallel driving-cylinders located between the spindles on both sides of the machine-frame of a long endless band arranged to drive all the spindles of the frame or of a section thereof and two or more stationary guide-pulleys to bring back the band to the starting-point substantially as described.

2. In mechanism for driving spindles of spinning, twisting, winding and like machines the combination with two long central and parallel driving-cylinders located between the spindles on both sides of the machine-frame of a long endless band arranged to drive all the spindles of the frame or of a section thereof, two or more stationary guide-pulleys to bring back the band to the starting-point and a movable tension-pulley for automatically tensioning the band substantially as described.

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

JOHN BOYD.

Witnesses:

JAMES CUNNINGHAM,
ANDREW RANKIN.