

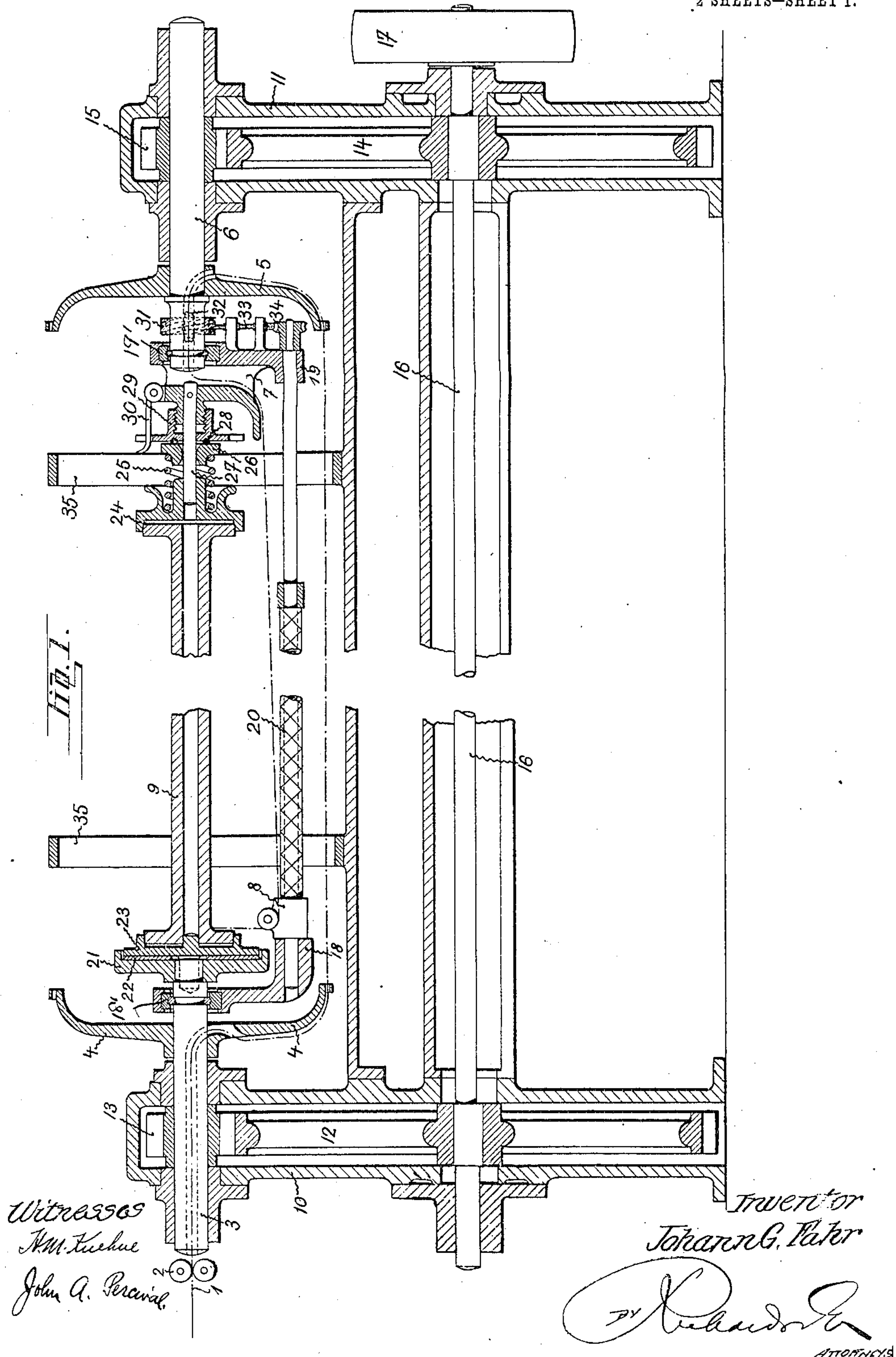
No. 843,448.

PATENTED FEB. 5, 1907.

J. G. FAHR.
SPINNING MACHINE.

APPLICATION FILED AUG. 6, 1903.

2 SHEETS—SHEET 1.

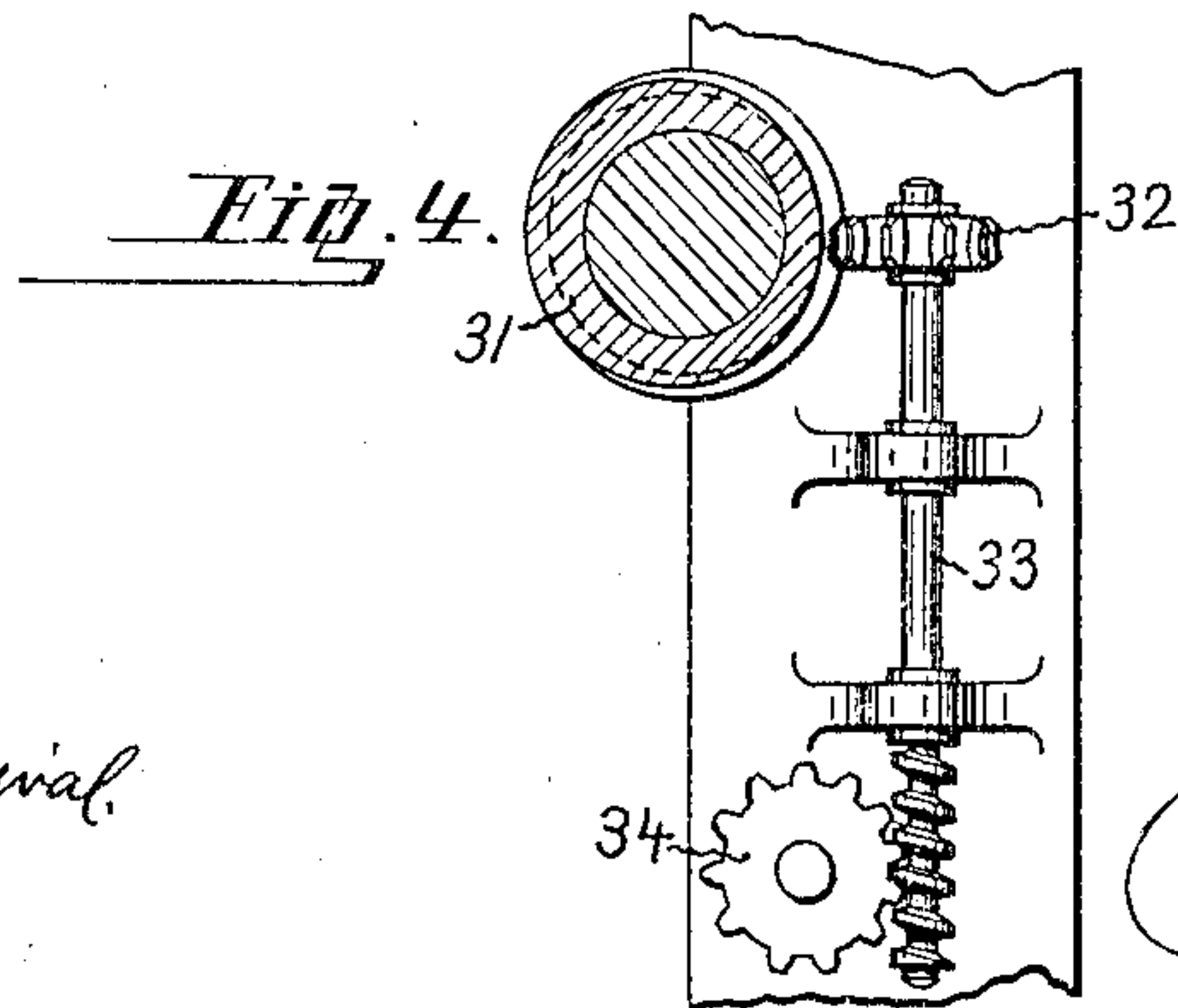
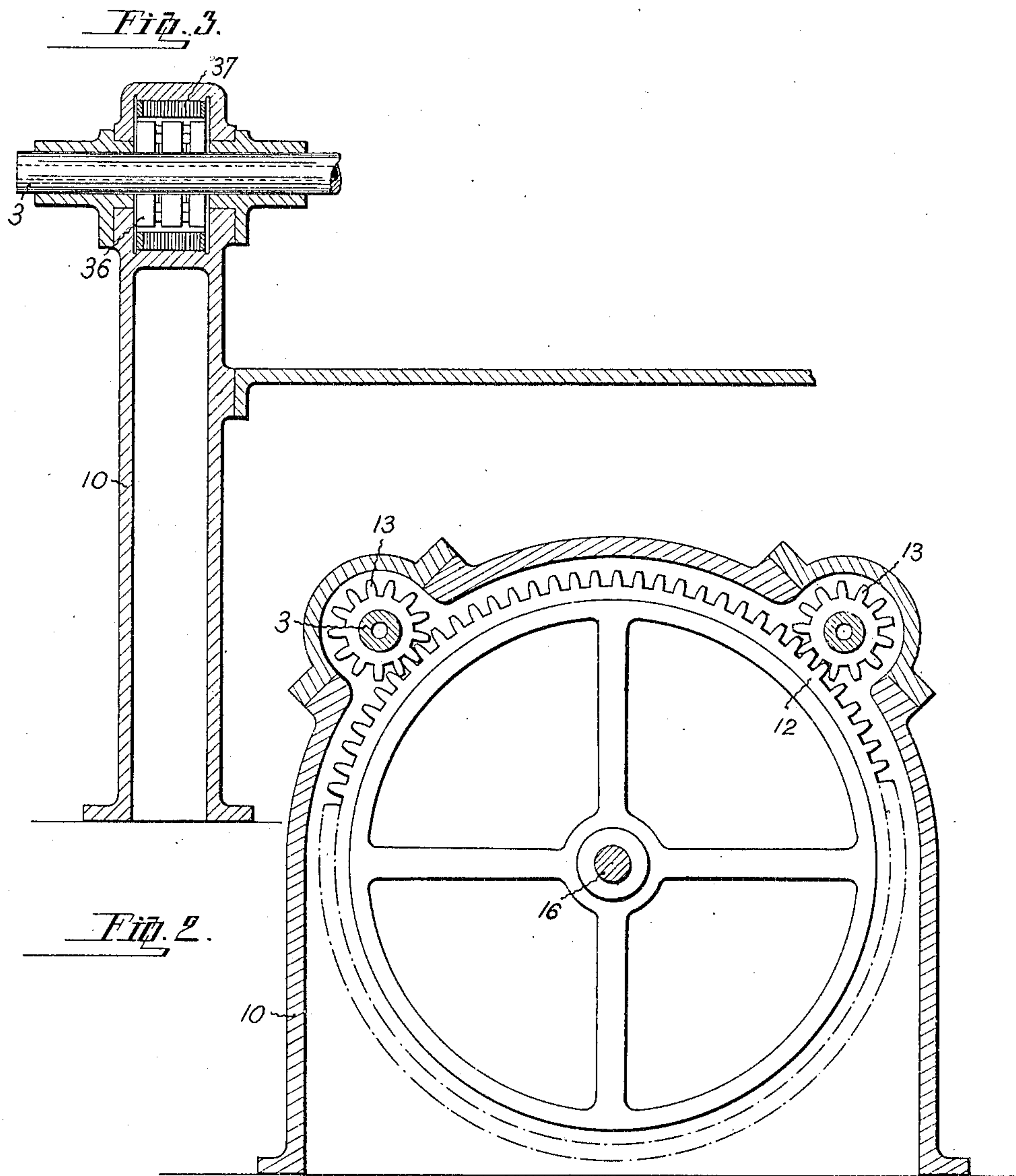


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Witnesses
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UNITED STATES PATENT OFFICE.

JOHANN GEORG FAHR, OF GOTTMADINGEN, BADEN, GERMANY.

SPINNING-MACHINE.

No. 843,448.

Specification of Letters Patent.

Patented Feb. 5, 1907.

Application filed August 6, 1903. Serial No. 168,469.

To all whom it may concern:

Be it known that I, JOHANN GEORG FAHR, a subject of the Emperor of Germany, residing at Gottmadingen, Baden, Germany, have
5 invented Improvements in Spinning-Machines, of which the following is a specification.

This invention relates to spinning-machines; and the object of this invention is to construct such machines more especially
10 adapted for spinning hemp in such a manner as to render them capable of being driven at high speeds—say at five thousand revolutions per minute and over. The spinning-machines ordinarily used hitherto are not
15 adapted to be driven at a speed exceeding one thousand to fifteen hundred revolutions per minute by reason of the effect of centrifugal action, because the fliers of the machines comprise rigid transverse pieces which
20 bend and finally break at high speeds of revolution. It has been attempted to make the fliers of spinning-machines of elastic material—such as, for instance, of a bundle of pianoforte-wire—which in revolving would
25 yield to centrifugal action and bend or belly outward; but this arrangement has also the drawback that the spinning-flier must be efficiently protected by means of a lattice-guard in order to prevent danger arising
30 therefrom.

Now in machines according to the present invention spinning-fliers are entirely dispensed with, and the thread is carried round only by means of arms which are arranged at
35 both ends of the bobbin and which are caused to revolve at equal speeds of revolution in any desired manner.

In the drawings, Figure 1 is a vertical axial cut of a spinning-machine constructed according to the present invention. Fig. 2 is a vertical cross-section through the wheel-gear modified in such a manner that by means of the same driving-wheels two spindles are driven. Fig. 3 shows a method of driving
45 the machine by means of synchronous electromotors and a change in the arrangement for guiding the thread. Fig. 4 is a lateral view of the mechanism for driving the shuttle-guide.

Hollow spindles 3 and 6, on which are rigidly mounted the spinning-arms 4 and 5, are placed in the two frames 10 and 11, so that they can turn, and are uniformly driven by means of the two couples of toothed wheels
55 12 13 and 14 15 in such a manner that wheels 12 and 14 are placed on one common

shaft 16, to which a rotary motion is imparted through pulley 17. From the spindles 3 and 6 are suspended in the form of stirrups two hanging supports 18 and 19, 60 which form the supports for spindle 20, provided with cross-thread and carrying the guide 8. Said supports 18 and 19 have ball-bearings 18' and 19' on the spindles 3 and 6.

The thread 1 is fed into the hollow spindle 65 3 by two rolls 2. After leaving the spindle 3 the thread is guided over the arms 4 and 5, through the hollow spindle 6, and through a passage 7 in the support 19 to the guide 8, whence it is wound up on bobbin 9. 70

The bobbin is secured and driven in the following manner: On the right end of spindle 3 is firmly secured disk 21. Into the latter is pressed with an interposed asbestos plate 22 a second disk 23, into the slightly-conical 75 depression of which the front disk of bobbin 9 is pressed. Disk 23 has two pivots, one of which projects into an aperture in the spindle 3 and the other into an aperture in bobbin 9. On the right side the bobbin is 80 pressed into the disk 24, the necessary pressure being produced by means of spring 25, which abuts on the one side against 24 and on the other side against plate 26. The pressure produced by the spring is effective 85 enough to cause the bobbin to be taken along by means of friction with the rotary motion of disk 21. 24 and 26 turn loosely around the axis 27, which is secured in supporting part 7, connected with the hanging 90 support 19. In order to reduce the friction between plate 26 and supporting part 27 a ball-bearing 28 has been provided between them, while the tension of spring 25 can be adjusted by nut 29, secured by part 30. 95 The spindle 20, carrying guide 8, is driven from spindle 6 by the double worm-and-wheel arrangement 31 32 33 34. (See Fig. 1 and Fig. 4.) Spindle 20, being provided with left and right handed threads, which cross 100 each other, the shuttle is made to travel on it with a reciprocating motion. The first twist is given to the thread directly behind the rolls 2. A further short twist is brought about in that place where it enters over 105 spinning-arm 5 into the hollow spindle 6. As the thread rotates at a high rate of speed, it would be caused to bulge out by the centrifugal force if hanging free in its entire length. It is therefore guided by slide-rings 110 35, which are secured to the machine-frame. The above-described machine can also be

used to advantage as twisting or rope machine. It may further be constructed with two pairs of spindles which are both driven by the same shaft 16. Fig. 2 shows this modification in a vertical cross-section through the wheel-gear with the numerals of reference like those used in Fig. 1. Instead of being driven by wheel-couples 12 13 and 14 15 spindles 3 and 6 can also be operated by means of synchronous electromotors which are placed directly on the spindles. This construction is represented in Fig. 3, in which, besides the known numerals of reference, 36 is the armature, and 37 the bobbins, of the motor.

What I claim is—

1. In spinning-machines, the combination with a bobbin, of two independent arms re-

volving at equal speeds, said arms being located on each side of the bobbin, means for revolving the arms and bobbin and means for preventing ballooning of the thread.

2. In spinning-machines, the combination with a bobbin, of two independent arms located on each side of the bobbin, means for revolving said arms at equal speeds, and a plurality of rings encircling the bobbin and lying between the arms, substantially as described.

Signed at Mannheim, Germany, this 10th day of June, 1903.

JOHANN GEORG FAHR.

Witnesses:

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H. W. HARRIS.