

No. 657,318.

Patented Sept. 4, 1900.

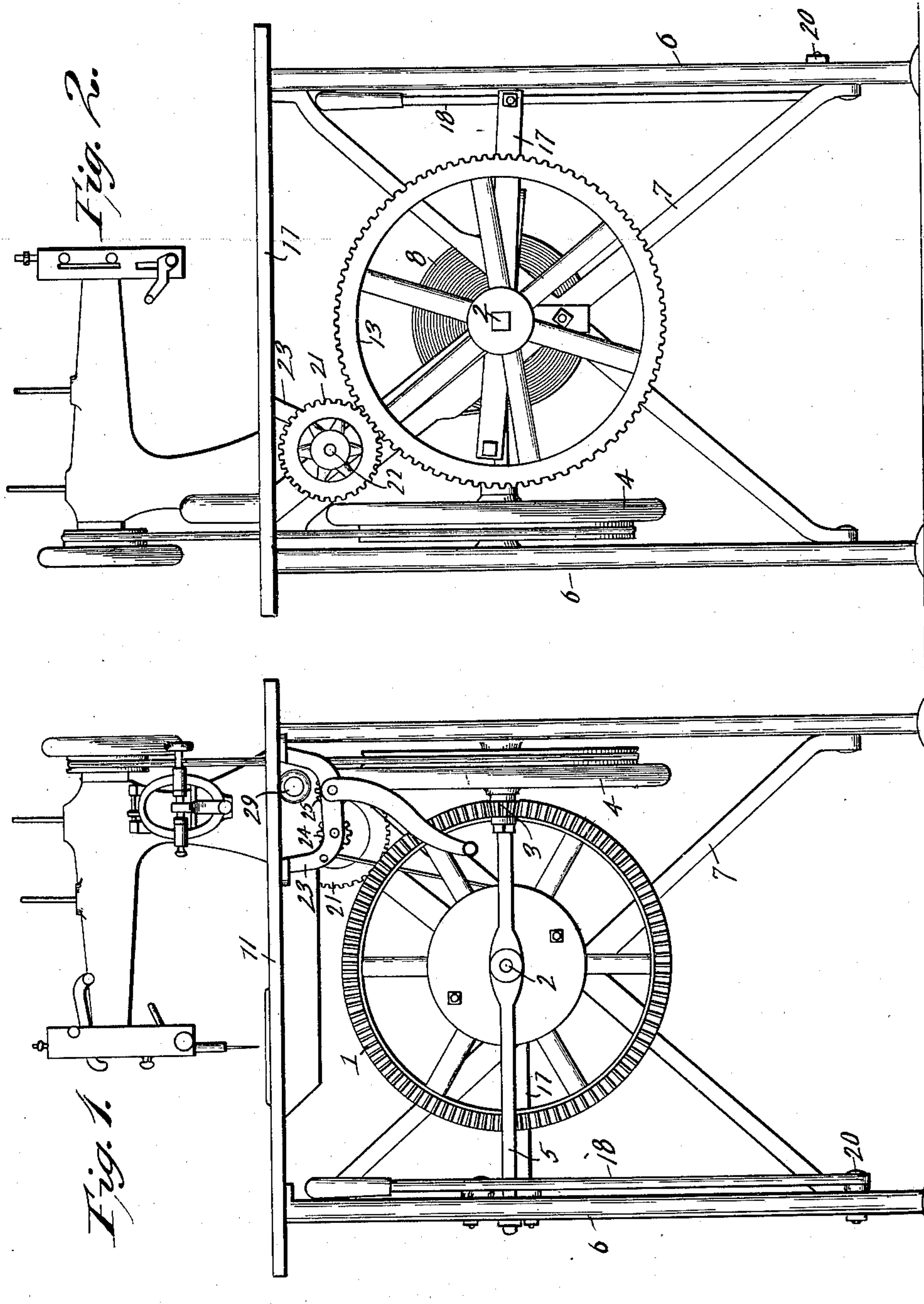
J. R. OLIVER.

SPRING MOTOR FOR SEWING MACHINES.

(Application filed June 4, 1900.)

(No Model.)

2 Sheets—Sheet 1



Witnesses

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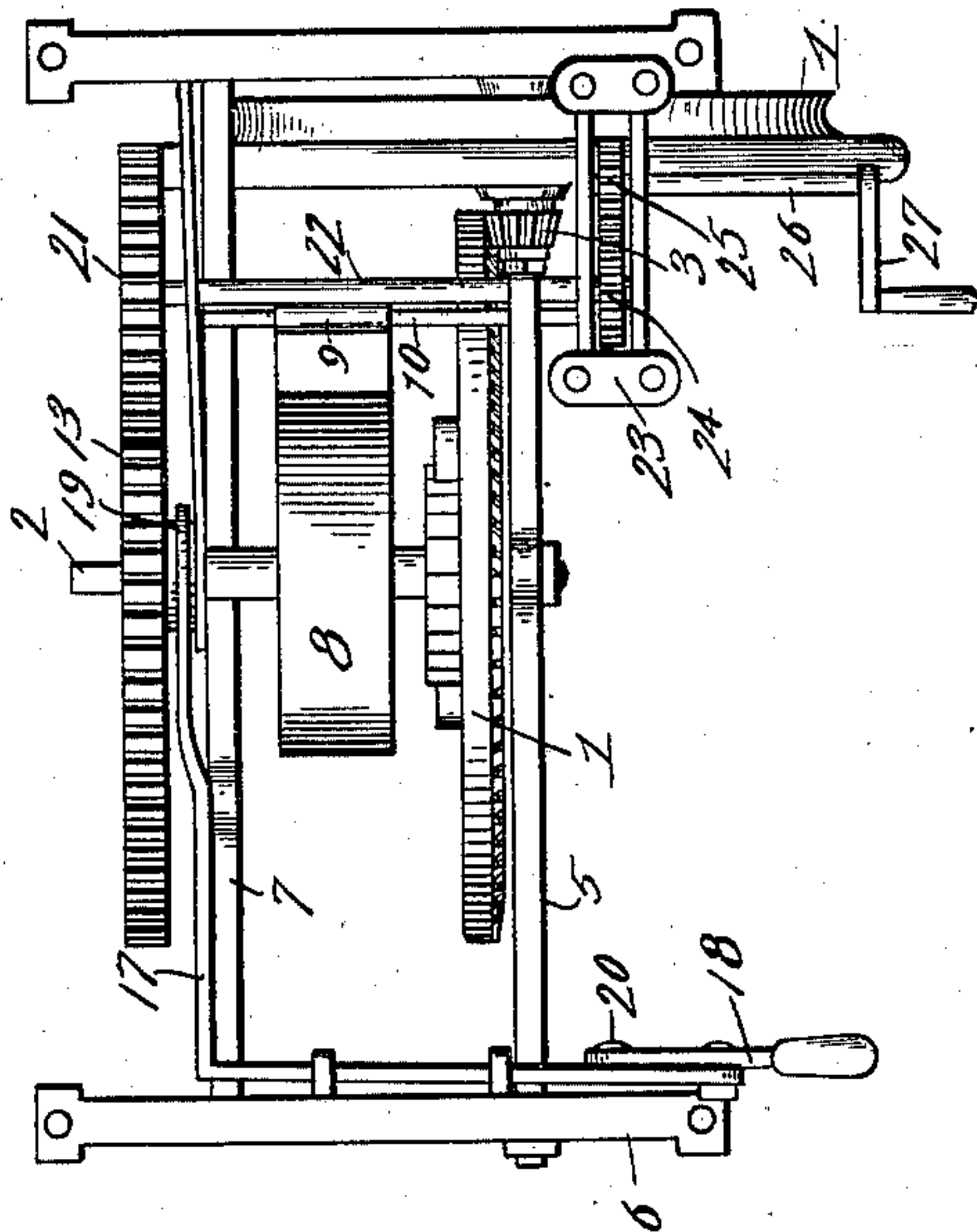


Fig. 4.

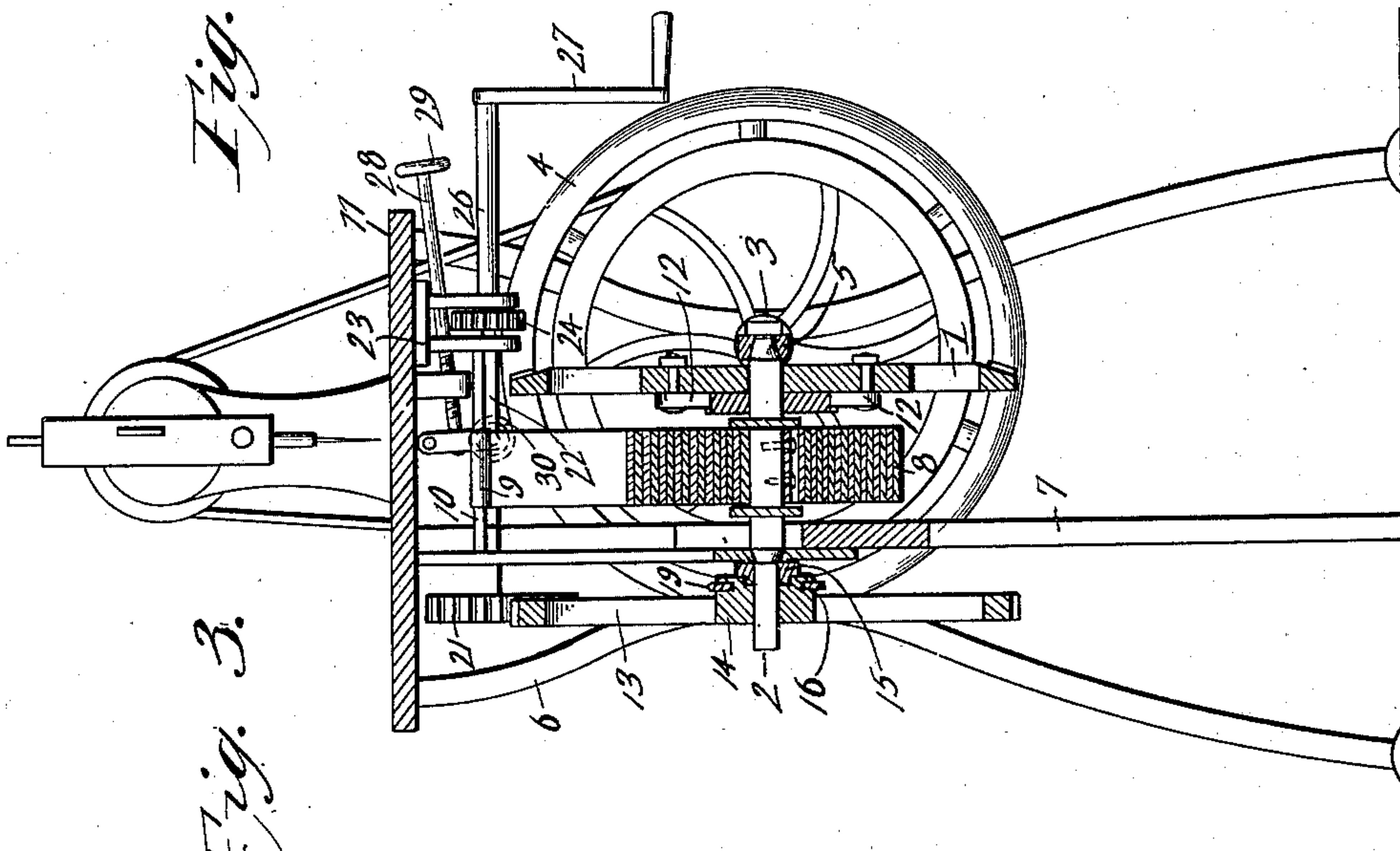


Fig. 3.

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UNITED STATES PATENT OFFICE.

JAMES ROBERT OLIVER, OF McMINNVILLE, TENNESSEE.

SPRING-MOTOR FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 657,318, dated September 4, 1900.

Application filed June 4, 1900. Serial No. 19,062. (No model.)

To all whom it may concern:

Be it known that I, JAMES ROBERT OLIVER, a citizen of the United States, residing at McMinnville, in the county of Warren and State of Tennessee, have invented a new and useful Spring-Motor for Sewing-Machines, of which the following is a specification.

The invention relates to improvements in spring-motors for sewing-machines.

One object of the present invention is to improve the construction of motors for sewing-machines and to provide an exceedingly simple and inexpensive one adapted to be readily applied to an ordinary sewing-machine without necessitating any material alteration in the construction thereof and capable of being readily wound up and controlled by the operator without leaving her position at the front of the machine.

A further object of the invention is to provide a spring-motor of this character which will admit of the machine being stopped at any position with the needle up or down and which will permit a bobbin to be wound in the usual manner without running the other part of the machine.

The invention consists in the construction and novel combination and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended.

In the drawings, Figure 1 is a front elevation of a sewing-machine provided with a spring-motor constructed in accordance with this invention. Fig. 2 is a rear elevation of the same. Fig. 3 is a vertical sectional view taken transversely of the machine from front to rear. Fig. 4 is a plan view, the table of the machine being removed.

Like numerals of reference designate corresponding parts in all the figures of the drawings.

1 designates a main drive-wheel consisting of a bevel gear-wheel mounted on a horizontal shaft 2 and which meshes with a small bevel-pinion 3, located at one side of the machine and connected with the band-wheel 4 thereof. The band-wheel 4 of the machine, which is of the ordinary construction, is mounted on a horizontal bar or shaft 5, which is stationary and which extends from one side of the frame 6 of the machine to the other

side thereof to support the said band-wheel and also to form a support for the front end of the horizontal main shaft 2, as clearly shown in Fig. 4 of the accompanying drawings. The front end of the main shaft is preferably provided with cone-bearings, and the rear end or portion which is journaled in the rear diagonally-disposed crossed braces 7 of the frame is provided with suitable cone-bearings; but ball-bearings or any other suitable antifriction devices may be provided for reducing the friction to a minimum.

The main shaft 2 is connected with the inner end of a power-spring 8 by a set-screw or other suitable means, and the outer end 9 of the spring is connected with the frame of the machine by a rod 10, located beneath the top or table 11. The large drive-wheel 1 is mounted loose on the main shaft 2, but is connected with the same by a suitable clutch 12, which may be of any desired construction and which is adapted to permit the shaft 2 to be turned independently of it when winding the spring. The spring when wound up is adapted to drive the shaft 2, and the motion thereof is communicated to the band-wheel 4 through the bevel-gearing before described, as clearly illustrated in Fig. 4 of the accompanying drawings.

The rear end of the main shaft 2 has loosely mounted upon it a large gear-wheel 13, which is provided with a notched hub 14, adapted to interlock with a notched collar 15 of the shaft, whereby it may be rigidly connected with the same for winding up the spring, as hereinafter explained. The collar 15 is secured to the rear portion of the shaft by a set-screw, and the inner end of the hub of the rear gear-wheel 13 is provided with an annular groove 16, receiving the forked end of a bar 17, which is slidingly mounted on the frame and which is connected with an operating-lever 18. The bar 17 is approximately L-shaped, its rear portion being provided with the said forked end 19 and its front portion being pivoted to the operating-lever 18. The forwardly-extending portion of the L-shaped lifting-bar is mounted in suitable guides or brackets of the adjacent side of the machine, and the operating-lever 18, which is fulcrumed at its lower end 20, is provided at its upper end with a handle and

is adapted to be moved inward and outward to engage the rear gear-wheel with the collar 15 and to disengage it therefrom.

The large rear gear-wheel 13 meshes with an upper rear pinion or gear 21, mounted on a rod 22, forming a shaft and extending to the front of the machine, where it is journaled in a bracket or hanger 23. The bracket or hanger 23 consists of two substantially U-shaped sides provided at their terminals with attachment-plates, which are screwed or otherwise secured to the top or table of the machine. The front end of the rod or shaft 22 carries a small gear or pinion 24, which meshes with a spur-pinion 25 of a shaft or spindle 26, which is extended beyond the front of the machine and carries a crank-handle 27, as clearly illustrated in Fig. 4 of the accompanying drawings. The crank-handle is adapted to be rotated, and through the front spur-pinions and the rear spur gear-wheels 13 and 21 is adapted to rotate the main shaft independently of the main drive-wheel 1 for winding up the spring. The spring may be of any size and power to run the machine at the desired speed and for the desired length of time.

The speed of the motor is controlled by an adjusting device consisting of a screw 28, provided at its outer end with a handle 29 and carrying a swiveled wheel 30 at its inner end for engaging the rim of the band-wheel, and the said swiveled wheel is provided with a rubber rim or tire and is adapted to run on the said band-wheel. The swivel connection between the brake or controlling wheel 30 and the screw permits the latter to be adjusted or rotated independently of the former. By adjusting the screw the machine may be stopped, started, and caused to run at the desired rate of speed, and the stopping of the machine may be effected at any time and when the needle is either up or down.

What is claimed is—

1. In a device of the class described, the combination with a sewing-machine, of a horizontal main shaft, a spring connected therewith, bevel-gearing connecting the main shaft with the band-wheel of the machine, a rear gear-wheel having a clutch connection with the shaft, an operating device for throwing the rear gear-wheel into and out of engagement with the main shaft, and gearing meshing with the rear gear-wheel for winding the spring, substantially as described.

2. In a device of the class described, the combination with a sewing-machine, of a horizontal main shaft, a spring connected with the same, gearing connecting the main shaft with the band-wheel of the machine, a rear gear-wheel slidingly mounted on the main

shaft and having a clutch connection with the same, an operating-lever arranged at the front of the machine, a sliding bar connected with the lever and with the rear gear-wheel, and winding mechanism meshing with the rear gear-wheel, substantially as described.

3. In a device of the class described, the combination with a sewing-machine, of a horizontal main shaft, a spring connected with the same, gearing connecting the main shaft with the band-wheel of the machine, a gear-wheel slidingly mounted on the main shaft and having a clutch connection with the same, a substantially L-shaped bar slidingly mounted on the frame of the machine and connected with the gear-wheel, and a lever fulcrumed at its lower end at the front of the machine and provided at its upper end with a handle and connected between its ends with the sliding bar, substantially as described.

4. In a device of the class described, the combination with a machine, of a main shaft 2, gearing connecting the main shaft with the band-wheel of the machine, a spring connected with the main shaft, a gear-wheel slidingly mounted on the main shaft and having a clutch connection with the same, a counter-shaft 22, a gear-wheel mounted on the counter-shaft and meshing with the said gear-wheel, front gearing connected with the front end of the counter-shaft 22, and a crank for operating the front gearing, substantially as described.

5. In a device of the class described, the combination of a machine having a frame provided with a horizontal bar supporting the band-wheel of the machine, a main shaft journaled on the frame and on the horizontal bar, gearing connecting the main shaft with the band-wheel, a spring connected with the main shaft, a counter-shaft, a rear pinion 21 mounted on the rear end of the counter-shaft, a rear gear-wheel 13 slidingly mounted on the main shaft and having a clutch connection with the same and meshing with the rear pinion 21, means for shifting the rear gear-wheel 13, a hanger supporting the counter-shaft 22, a pair of pinions mounted in the hanger and arranged at the front of the machine, one of the pair of pinions being mounted on the counter-shaft 22, and a crank connected with the other one of the pair of pinions, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

JAMES ROBERT OLIVER.

Witnesses:

W. F. ELKINS,
C. M. MORFORD.