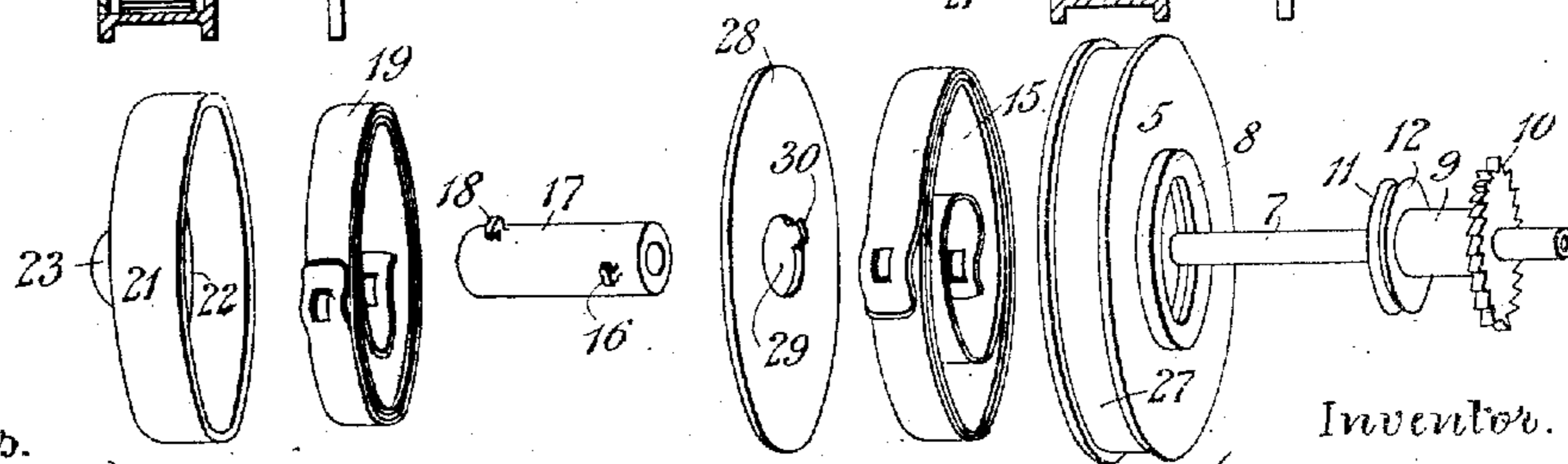
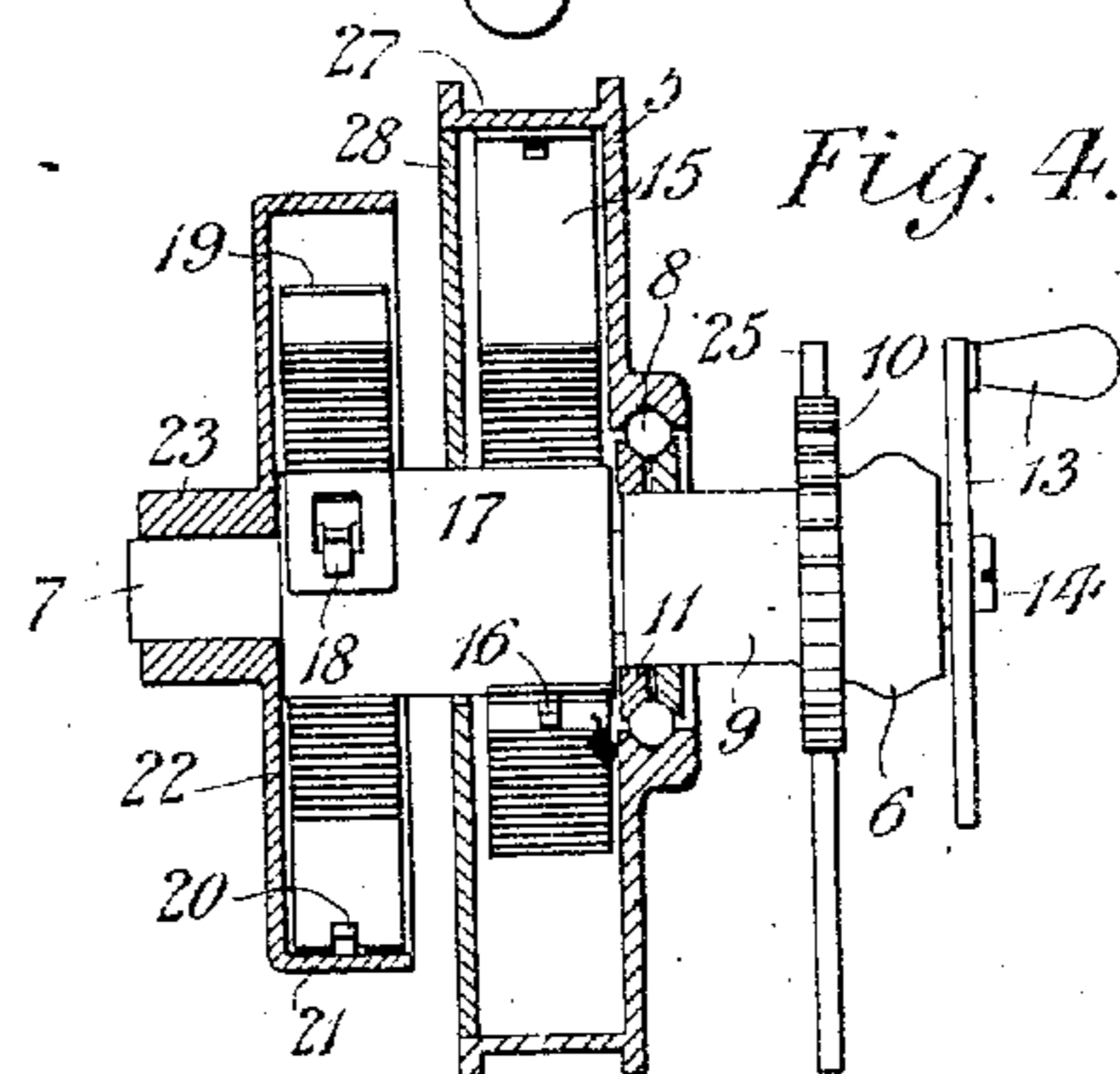
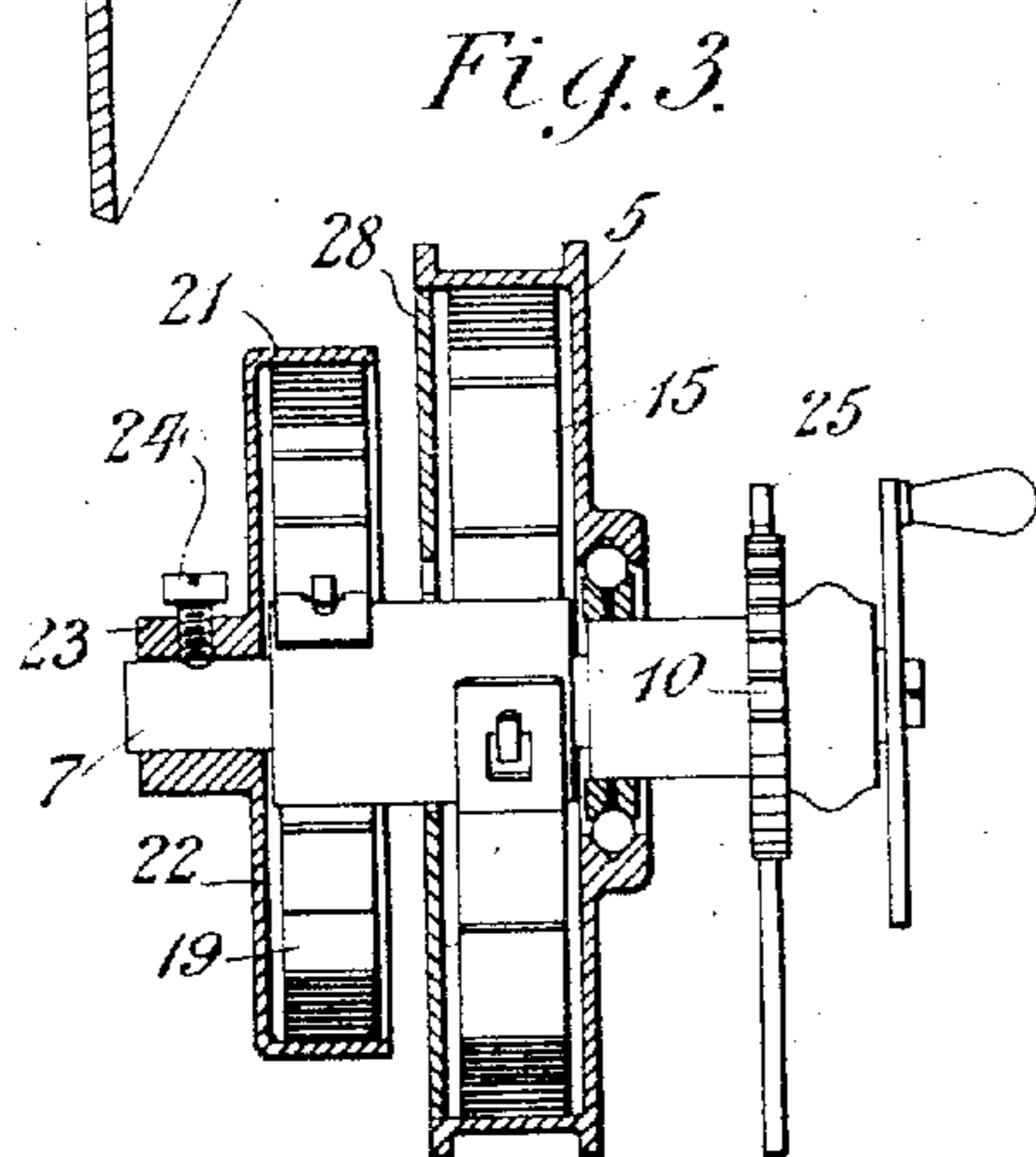
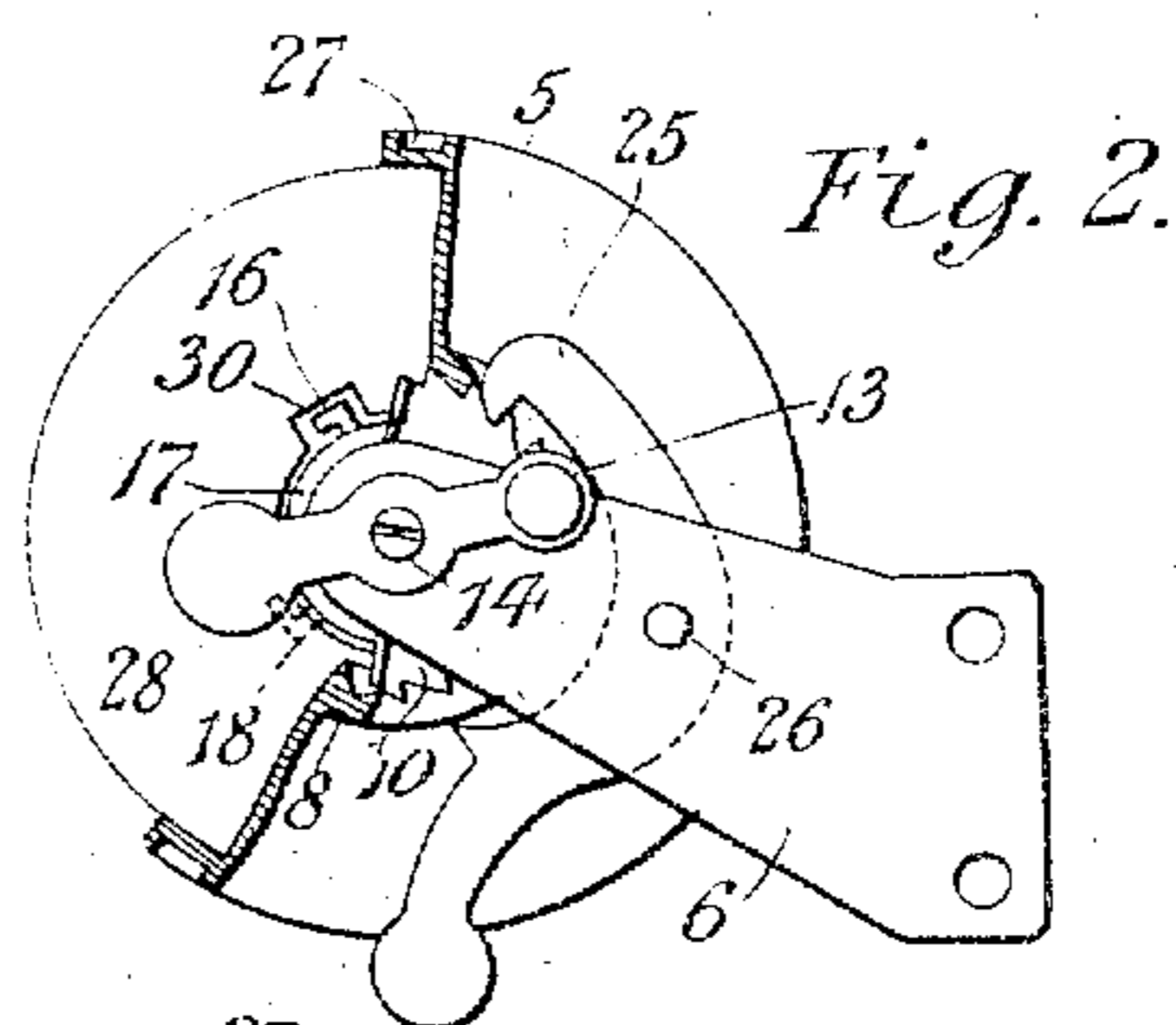
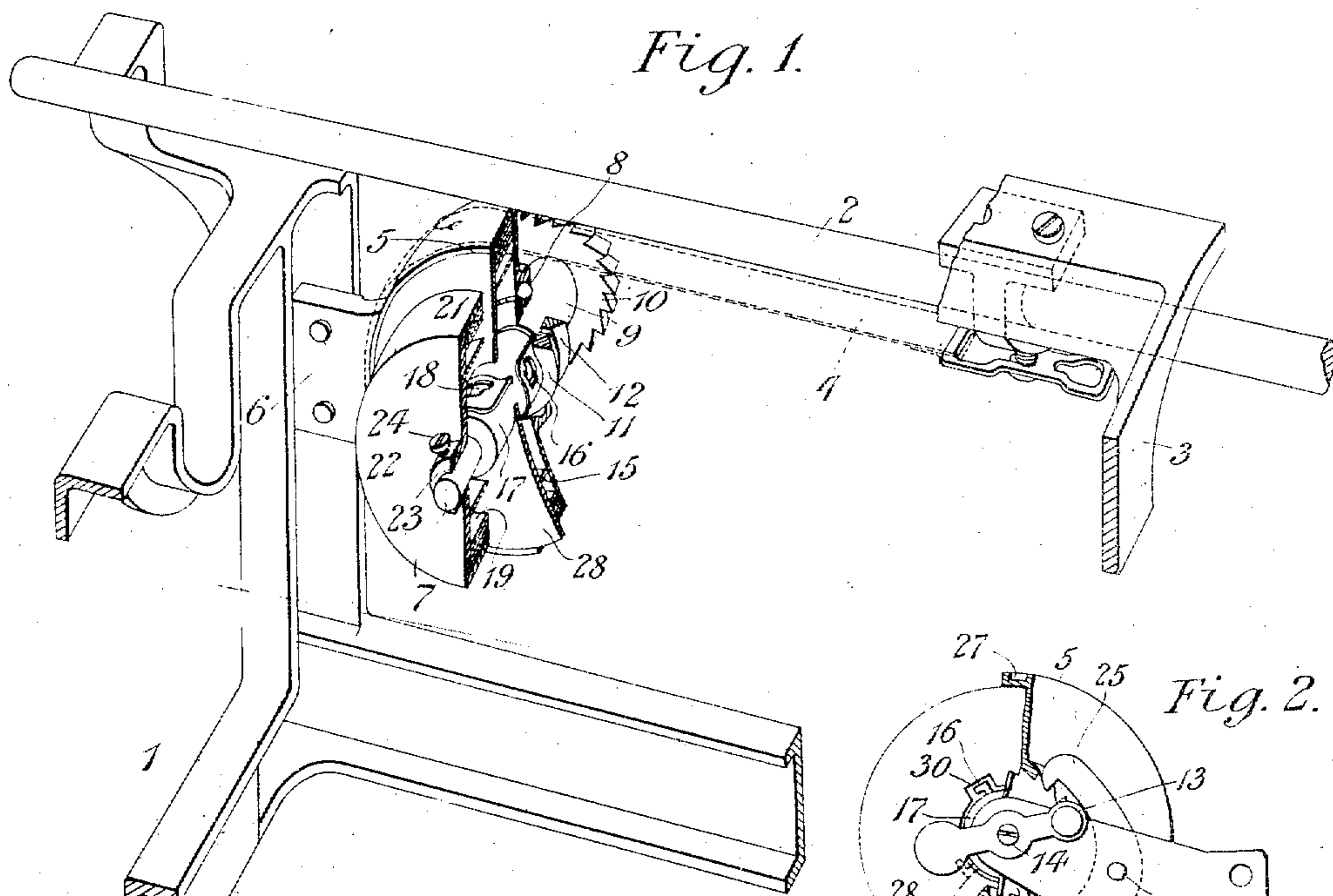


W. E. BARNARD.  
TYPE WRITING MACHINE.  
APPLICATION FILED MAR. 17, 1910.

975,200.

Patented Nov. 8, 1910.



Witnesses.

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# UNITED STATES PATENT OFFICE.

WALTER E. BARNARD, OF HARTFORD, CONNECTICUT, ASSIGNOR TO UNDERWOOD TYPE-  
WRITER COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY.

TYPE-WRITING MACHINE.

975,200.

Specification of Letters Patent.

Patented Nov. 8, 1910.

Application filed March 17, 1910. Serial No. 549,968.

*To all whom it may concern:*

Be it known that I, WALTER E. BARNARD, a citizen of the United States, residing in Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

This invention relates to the carriage-driving spring drums for typewriting machines, in which two clock-springs are connected together, and provision is made for varying the tension or pull on the carriage.

The object of the invention is to provide a simple and inexpensive and improved device for this purpose, readily applicable to existing machines.

In the accompanying drawings, Figure 1 is a perspective view showing the motor in section and with parts broken away. Fig. 2 is a rear elevation, partly broken away, of the drum. Fig. 3 is a vertical longitudinal sectional view of the same with the springs unwound. Fig. 4 is a similar view with the springs wound up. Fig. 5 is a detail perspective view of the separated parts of the motor.

The reference numeral 1, marks part of the frame of a typewriting machine; 2, a carriage guide rod; 3, a part of the paper carriage; 4, a strap connecting the carriage 3 with a spring-drum 5, connected by a bracket 6 with the frame 1. The foregoing parts are or may be of any known or suitable construction.

The drum 5 is mounted for rotation relatively to a shaft 7, being connected with said shaft by a ball-bearing 8, or otherwise. The shaft 7 is journaled in the bracket 6, and is provided with a sleeve 9 fast thereto. At one end of sleeve 9 is a ratchet-wheel 10, and two disks 11, 12, with beveled edges are attached to the other end of said sleeve 9 and form part of the ball-bearing named above. A handle 13 is attached to the end of shaft 7 by a screw 14, the bearing in the bracket 6 for the shaft 7 being between the ratchet wheel 10 and handle 13, as shown in Figs. 2 and 4. The handle thus locks the shaft 7 in place in its bearing in the bracket 6. The outer end of a clock-spring 15 is attached in any suitable way to the inside of the flange of drum 5, the inner end of said spring 15 being caught over a hook 16 on a sleeve 17, or being otherwise suitably connected to said

sleeve 17, which is loosely mounted on said shaft 7. The sleeve 17 has another hook 18 thereon, which hook 18 points oppositely to the hook 16, and the inner end of a clock-spring 19 hooks over hook 18, the outer end of said spring 19 being attached in any suitable way, as by a hook 20, to the inner face of the flange 21 of a drum 22. The hub 23 of drum 22 is made fast in a suitable manner, as by a set-screw 24, to the end of the shaft 7. A dog 25 co-acts with the ratchet-wheel 10 to prevent the springs from rotating said shaft.

The parts named are so arranged and assembled, that the springs as they attempt to unwind, tend to draw the carriage toward the drums 5, 22, and to move said carriage when the machine is operated in the usual way. The dog 25 is shown as being pivoted at 26 on the bracket 6, and drum 5 is shown with the peripheral groove 27 to receive the strap 4. A disk 28 may be and preferably is mounted on the sleeve 17 between the drums 5 and 22, as a precaution against entanglement of the coils of the clock-springs, and as a cover to keep dirt out. The disk 28 is perforated at 29 to go over the sleeve 17, and it may fit tightly on said sleeve, being notched at 30 so as to slip by or over one of the hooks 16, 18, in assembling.

It is remarked that the springs 15 and 19 tend to rotate their respective drums in opposite directions, so the construction amounts to connecting the inner end of spring 15 to the flange 21 of drum 22, or to connecting said inner end by a spring to a fixed abutment. The "tension" may be varied by rotating shaft 7 one way or the other in the usual manner. By reason of this construction of springs, the barrel 21 may remain stationary during the carriage movements, only the single barrel 5 being in motion, which is a desideratum, as it is necessary to reduce the moving weight to a minimum, in order to fulfil the requirement of speed and ease of operation.

Having thus described my invention, I claim:

1. In a typewriting machine, the combination with the carriage, of a spring-drum consisting of two springs arranged side by side but reversely, a rotary coupling to which the inner ends of said springs are connected, a shaft on which said coupling

is loosely mounted, a drum fast on said shaft, the outer end of one of said springs being fast to said drum, a drum loose on said shaft, the outer end of the other spring being fast to said loose drum, and a connection between said loose drum and the carriage.

2. In a typewriting machine, the combination with the carriage, of a spring-drum consisting of two springs arranged side by side but reversely, a rotary coupling to which the inner ends of said spring are connected, a rotary shaft on which said coupling is loosely mounted, a bracket provided with a bearing for said shaft, a ratchet-wheel on said shaft at one side of said bearing and an operating lever on said shaft at the other side of said bearing, a drum fast on said shaft and having the outer end of one of said springs fast thereto, a drum loose on said shaft and having the outer end of the other spring fast thereto, and connections between said loose drum and said carriage.

3. In a typewriting machine, the combination with the carriage, of a spring-drum consisting of two reverse clock-springs whose inner ends are connected together, a shaft passing through said springs, a bearing for said shaft, a shaft-turning lever at one side of said bracket and a ratchet-wheel on said shaft at the other side thereof, one member of a ball-bearing adjacent to said ratchet-wheel, a drum provided with the other member of the ball-bearing, connections between said drum and the carriage, and a drum fast on said shaft, the outer ends of said springs being connected to said drums.

4. In a typewriting machine, the combi-

nation with the carriage, of a spring-drum consisting of reverse clock springs whose inner ends are connected with each other, a shaft passing through said springs, a bearing for said shaft, a ratchet-wheel on said shaft at one side and a shaft-operating lever on said shaft at the other side of said bearing, a drum fast to said shaft, a drum loose on said shaft, the outer ends of said springs being connected to said drums, and connections between said loose drum and said carriage.

5. In a typewriting machine, the combination with a carriage, of two reversely coiled springs connected at their inner ends, means for holding the outer end of one coiled spring stationary, and means for connecting the outer end of the other coiled spring to the carriage.

6. In a typewriting machine, the combination with a carriage, of two reversely coiled springs, a revolvable sleeve to which the inner ends of the springs are reversely connected, means for holding the outer end of one coiled spring stationary, and means for connecting the outer end of the other coiled spring to the carriage.

7. In a typewriting machine, the combination with a carriage, of two reversely coiled springs connected at their inner ends, a fixed casing inclosing one of said springs, means for turning said casing to adjust the tension, and means for connecting the outer end of the other coiled spring to the carriage.

WALTER E. BARNARD.

Witnesses:

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