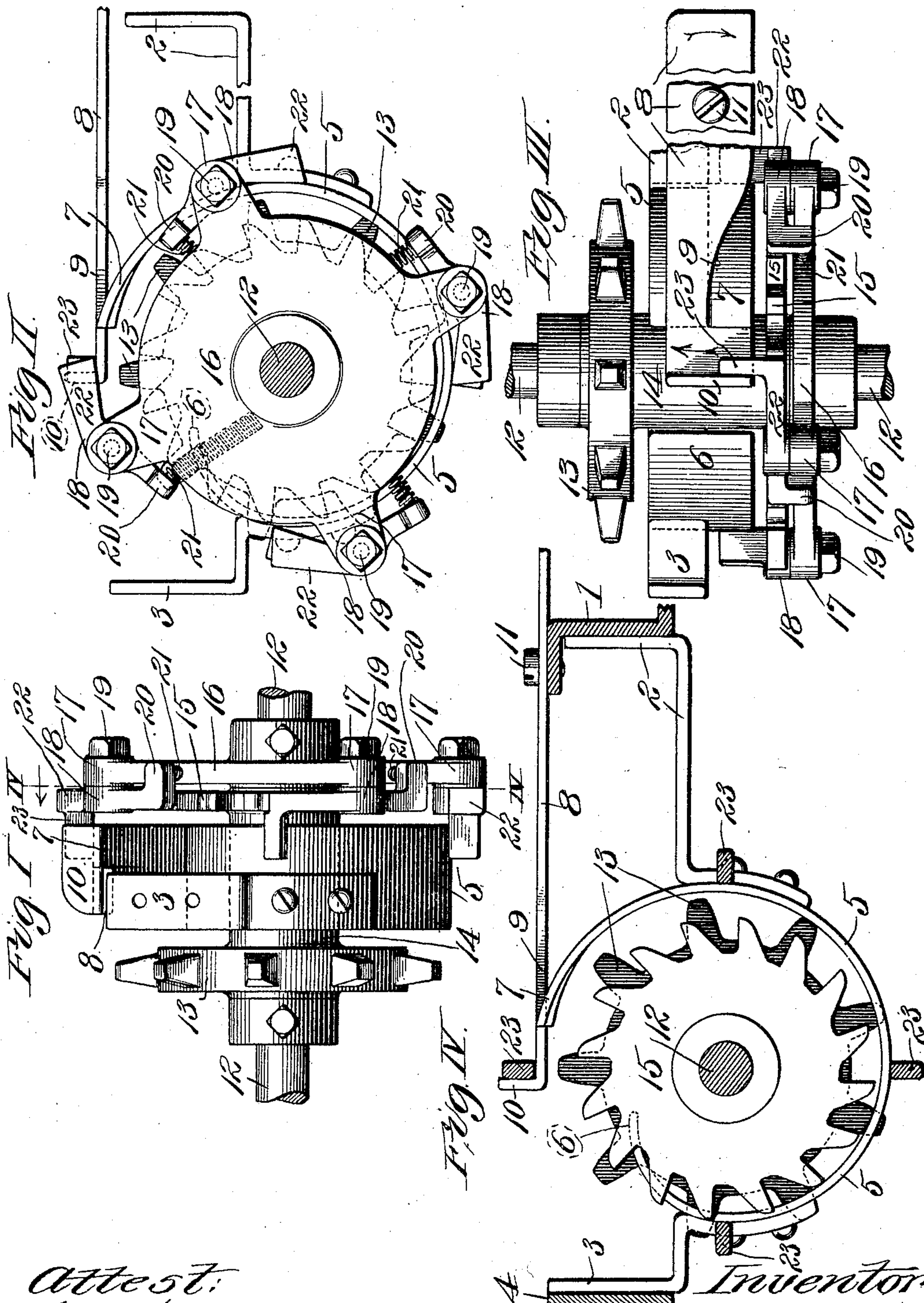


H. J. SPRINGER.
INTERMITTENT MOVEMENT.
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UNITED STATES PATENT OFFICE.

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INTERMITTENT MOVEMENT.

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To all whom it may concern:

Be it known that I, HENRY J. SPRINGER, a citizen of the United States, residing in Edwardsville, in the county of Madison and State of Illinois, have invented certain new and useful Improvements in Intermittent Movements, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to an intermittent movement for driving power-shafts.

Figure I is a front elevation of my intermittent movement. Fig. II is a side elevation. Fig. III is a top or plan view. Fig. IV is a vertical cross-section taken on line IV IV, Fig. I, with parts shown in elevation looking in the direction indicated by the arrow crossing said line.

1 designates a support to which is attached a hanger-bracket 2. 3 is a second hanger-bracket that is secured to a support 4.

5 designates a spiral cam that is supported by the hanger-brackets 2 and 3 and which has an inturned free end 6, leading toward its axis, and an outturned termination 7.

8 designates an oscillating stop-bar pivoted at 11 to the support 1. This stop-bar extends into a position above the termination 7 of the spiral cam, and it is provided at one side with a notch 9, located rearward from its forward end, and has at its extreme forward end an upturned lip 10.

12 designates a power-shaft from which motion is to be transmitted.

13 is a driving-wheel loosely mounted upon the power-shaft 12 and to which motion may be communicated from any suitable source of power. The drive-wheel 13 has formed integral with it a sleeve 14, and integral with said sleeve is a ratchet-wheel 15, which rotates loosely upon the power-shaft within the spiral cam 5.

16 designates a transmission-disk fixed to the power-shaft 12 and located alongside of the ratchet-wheel 15. This transmission-disk is provided with a plurality of ears 17, located at its periphery.

18 represents a series of dogs that are rockingly secured to the transmission-disk arms by pivoted bolts 19, which pass through the dogs intermediate of their ends. Each dog has a tail 20, that is backed by an expansion-

spring 21, seated in the transmission-disk and resting against the rear side of the tail 20. Each dog also has a heel 22, that is provided with a laterally-extending finger 23, which protrudes from one side of the heel into a position that will cause it to ride onto the spiral cam 5 during the rotation of the transmission-disk 16.

In the practical use of my intermittent movement the power-wheel 13 is continuously rotated, and rotation is thereby continuously imparted to the ratchet-wheel 15. These members rotate loosely on the power-shaft 12 and adjacent to the transmission-disk 16, fixed to said shaft. When the movement is at rest, all of the dogs 18 except one have the fingers 23, carried by their heels, resting against the outer side of the spiral cam 5, while the remaining dog has its heel supported, due to its finger 23 resting upon the stop-bar 8, as seen in Figs. I, II, and III. The heels of the dogs are thereby held free of engagement with the ratchet-wheel 15, which is undergoing rotation, as stated. When motion is to be imparted to the transmission-disk 16, the stop-bar 8 is swung laterally, as indicated by the arrows, Fig. III, so that its forward end is swung out of a position beneath the dog, finger 23 resting thereupon. The heel of said dog is thus permitted to descend into engagement with the ratchet-wheel, into which position it is forced by the spring 21, backing the tail of the dog. The transmission-disk is then caused to partake of rotation at a speed corresponding to that of the ratchet-wheel, while the stop-bar 8 returns to its former position, it being moved in any suitable manner. As the transmission-disk rotates the inactive dogs 18, carried by the disk, ride in a circuit around the periphery of the spiral cam 5, while at the same time the active dog is advancing toward the inturned end or tail 6 of said cam, with a result that its finger 23 rides onto said tail, thereby throwing the dog out of engagement with the ratchet-wheel to render it inactive for driving effect upon the transmission-disk. Simultaneously with the riding of the active dog onto the tail of the spiral cam the next adjacent advancing dog rides onto the outturned terminus of the spiral cam and passes therefrom through the notch 9 of the stop-bar 8 onto the forward portion of said

stop-bar and into engagement with the up-turned lip 10. In this way the transmission-disk is brought to rest and remains in such condition until the stop-bar is again swung laterally to permit the stop-bar-held dog to approach the ratchet-wheel and again engage it to renew the rotation of the transmission-disk and the power-shaft to which said disk is fixed.

I claim as my invention—

1. In an intermittent movement, the combination of a power-shaft, a transmitting member fixed to said shaft, a power member loosely mounted on said shaft having a driving portion and a driven portion, means carried by said transmission member for engagement with said driven portion, and a cam for intermittently moving said engaging means away from said transmitting member, substantially as set forth.

2. In an intermittent movement, the combination of a power-shaft, a transmitting member fixed to said shaft, a power member loosely mounted on said shaft having a driving portion and a driven portion, means carried by said transmission member for engagement with said driven portion, and a spiral cam for intermittently moving said engaging means away from said transmitting member, substantially as set forth.

3. In an intermittent movement, the combination of a power-shaft, a transmitting member fixed to said shaft, a power member loosely mounted on said shaft having a driving portion and a driven portion, means carried by said transmission member for engagement with said driven portion, a cam for intermittently moving said engaging means away from said transmitting member, and a stop-bar arranged to receive the engagement of said transmitting-member-engaging means, substantially as set forth.

4. In an intermittent movement, the combination of a power-shaft, a driven member loosely mounted on said power-shaft, a transmitting member fixed to said power-shaft, a series of dogs carried by said transmitting member for engagement with said driven member, and a cam for moving said dogs out of engagement with said driven member, substantially as set forth.

5. In an intermittent movement, the combination of a power-shaft, a driven member loosely mounted on said power-shaft, a transmitting member fixed to said power-shaft, a series of dogs carried by said transmitting member for engagement with said driven member, and a spiral cam for moving said dogs out of engagement with said driven member, substantially as set forth.

6. In an intermittent movement, the combination of a power-shaft, a driven member

loosely mounted on said power-shaft, a transmitting member fixed to said power-shaft, a series of dogs carried by said transmitting member for engagement with said driven member, a cam for moving said dogs out of engagement with said driven member, and a stop-bar for receiving said dogs subsequent to their travel upon said cam, substantially as set forth.

7. In an intermittent movement, the combination of a power-shaft, a transmitting member fixed to said shaft, a driving ratchet-wheel loosely mounted upon said shaft, dogs carried by said transmitting member and arranged for engagement with said ratchet-wheel, and a spiral cam arranged in the path of travel of said dogs, substantially as set forth.

8. In an intermittent movement, the combination of a power-shaft, a transmitting member fixed to said shaft, a driving ratchet-wheel loosely mounted upon said shaft, dogs carried by said transmitting member and arranged for engagement with said ratchet-wheel, a spiral cam arranged in the path of travel of said dogs, and a stop-bar for receiving the engagement of said dogs, substantially as set forth.

9. In an intermittent movement, the combination of a power-shaft, a transmitting member fixed to said shaft, a driving ratchet-wheel loosely mounted upon said shaft, spring-controlled dogs carried by said transmitting member and arranged for engagement with said ratchet-wheel, and a spiral cam arranged in the path of travel of said dogs, substantially as set forth.

10. In an intermittent movement, the combination of a power-shaft, a transmitting member carried by said power-shaft, a series of dogs pivoted to said transmitting member, a ratchet-wheel loosely mounted on said shaft and arranged to receive the engagement of said dogs, a spiral cam arranged in the path of travel of said dogs, and a notched stop-bar arranged to receive the engagement of said dogs, substantially as set forth.

11. In an intermittent movement, the combination of a power-shaft, a transmitting member carried by said power-shaft, a series of dogs pivoted to said transmitting member, a ratchet-wheel loosely mounted on said shaft and arranged to receive the engagement of said dogs, a spiral cam arranged in the path of travel of said dogs, and a notched oscillatory stop-bar arranged to receive the engagement of said dogs, substantially as set forth.

H. J. SPRINGER.

In presence of—

R. F. TUNNELL, Jr.,
GUS SOEHLKE.