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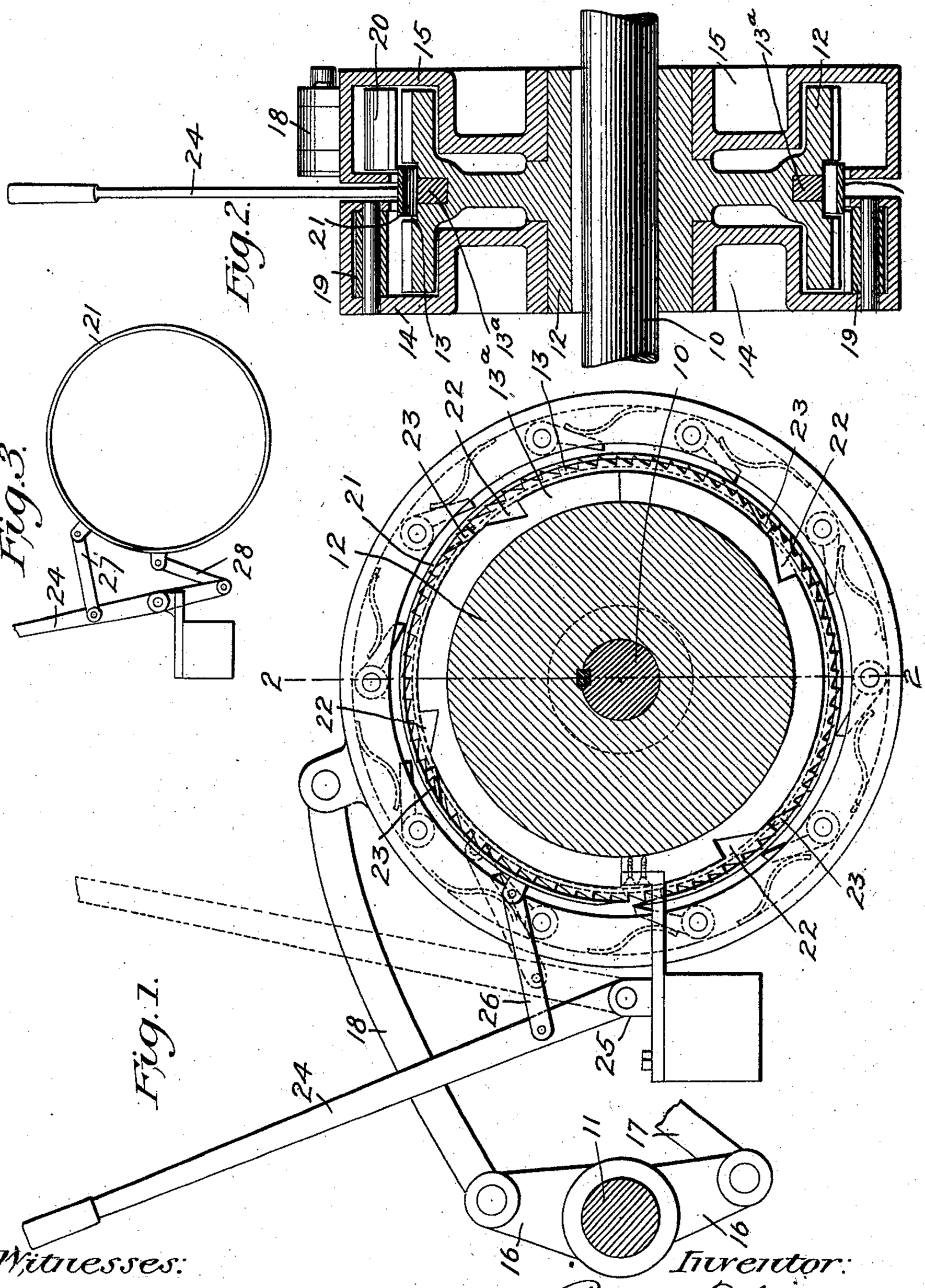
R. F. BARKER.

PAWL AND RATCHET MECHANISM.

(Application filed Aug. 20, 1901.)

(No Model.)



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PAWL-AND-RATCHET MECHANISM.

SPECIFICATION forming part of Letters Patent No. 693,344, dated February 11, 1902.

Application filed August 20, 1901. Serial No. 72,667. (No model.)

To all whom it may concern:

Be it known that I, RUBEN F. BARKER, a citizen of the United States, and a resident of Marinette, county of Marinette, and State of Wisconsin, have invented certain new and useful Improvements in Pawl-and-Ratchet Mechanism, of which the following is a specification and which are illustrated in the accompanying drawings, forming a part thereof.

This invention relates to a pawl-and-ratchet mechanism such as is employed, for example, with a sawmill set-works, and has for its object to provide means for simultaneously disengaging the pawls from the ratchet-wheel thereof. This object is attained by means of an expansible band engaging the pawls to lift them out of the ratchet-teeth, and specifically by means of the mechanism hereinafter described and which is illustrated in the accompanying drawings, in which—

Figure 1 shows a detail sectional view of the ratchet mechanism as employed with a sawmill set-works. Fig. 2 is a sectional view on the line 2 2 of Fig. 1, and Fig. 3 is a detail showing a modified form of construction.

I have illustrated the invention as adapted to a sawmill set-works, and at 10 there is shown the ordinary set-shaft of a sawmill-carriage, at 11 a rocker-shaft such as is commonly employed in devices of this kind, and at 12 a ratchet-wheel mounted upon the set-shaft. This ratchet-wheel is provided with a circumferential channel 13, dividing its face into two sections. Mounted upon the ends of the hub of the wheel 12 are a pair of pawl-carriers 14 15, each overlapping one of the sets of ratchet-teeth on the face of the wheel. These pawl-carriers are oscillated by means of crank-arms 16, fixed upon the rocker-shaft 11, to which they are connected, respectively, by means of the links 17 18. Each of the pawl-carriers is provided with a set of spring-pawls, as 19 20, which coöperate with the teeth of the ratchet-wheel, each of the pawls somewhat overlapping the channel 13.

Lying within the channel 13 is a band or member 13^a, preferably non-elastic and secured to a fixed anchorage, as 25. This band is provided with a plurality of circumferentially-arranged cam-faces, and in the present instance these are secured by notching the periphery of the band, as shown at 22, each notch being provided with a face oblique to the radius of the wheel 12.

Encircling the band 13^a and normally lying within the channel 13 there is an expansible band 21, of spring metal, this band being normally of less circumference than the band 13^a. The band 21 is provided with a series of inwardly-projecting cam-faces, in the present instance secured by means of blocks 23, each having a face inclined to the diameter and adapted to slide upon the inclined faces of the notches 22. This band is of sufficient width to engage both sets of ratchet-teeth, so that as it is expanded by the sliding of its cam-blocks 23 upwardly upon the inclined faces of the notches 22 the pawls will be lifted out of the ratchet-teeth.

A hand-lever 24, pivoted to a fixed support, as 25, is connected by means of a link 26 with the band 21 and serves as means for oscillating the latter.

I do not limit myself to the particular means illustrated and described for expanding the pawl-lifting band. This may be accomplished in a variety of ways—as, for example, by the mechanism illustrated in Fig. 3, wherein two links 27 28 are shown as leading from the hand-lever 24, one upon each side of its fulcrum, to the opposite ends of the band, so that the oscillation of the lever moves the two ends of the band in opposite directions to cause its expansion and contraction.

I claim as my invention—

1. In a pawl-and-ratchet mechanism, in combination, a shaft, a ratchet-wheel mounted thereon, pawls coöperating with the wheel, an elastic band engaging the pawls, and means for varying the diameter of the band.

2. In a pawl-and-ratchet mechanism, in combination, a shaft, a ratchet-wheel fixed thereon, pawls coöperating with the wheel, a stationary band encircling the wheel and having cam-faces on its periphery, an expansible band encircling the wheel and engaging the pawls and having cam-faces bearing on the cam-faces of the stationary band, and means for oscillating the expansible band.

3. In a pawl-and-ratchet mechanism, in combination, a shaft, a ratchet-wheel mounted thereon, pawls coöperating with the ratchet-wheel, a pair of bands encircling the wheel and having mutually-engaging cam-faces, one

of such bands being expansible and engaging the pawls, and means for moving such bands relatively circumferentially.

4. In a pawl-and-ratchet mechanism, in combination, a ratchet-wheel having a circumferential channel in its face, two sets of pawls each engaging teeth on one side of the channel and overlapping the latter, two bands within the channel and having mutually-engaging cam-faces, one of such bands being expansible and engaging the pawls, and means for relatively moving the two bands circumferentially.

5. In a pawl-and-ratchet mechanism, in combination, a ratchet-wheel having its face circumferentially channeled, two sets of pawls coöperating with the ratchet-teeth on opposite sides of the channel and overlapping the latter, a band located within the channel and having peripheral cam-faces and a fixed anchorage, an expansible band encircling the fixed band and bearing upon its cam-faces and engaging the pawls, and a hand-lever attached to the expansible band.

6. In a ratchet mechanism, in combination, a shaft, a ratchet-wheel mounted thereon, pawls coöperating with the wheel, a stationary member, an expansible band encircling the wheel and engaging the pawls, and coacting means between the stationary member and the band for expanding the latter when oscillated.

7. In a ratchet mechanism, in combination, a shaft, a ratchet-wheel mounted thereon, pawls coöperating with the wheel, a stationary member, an expansible band encircling the wheel and engaging the pawls, and coacting cam-faces between the stationary member and the band for expanding the latter when oscillated.

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