(No Model.)

A. D. SIMPSON.

GRAVITY FRICTION RATCHET.

No. 305,764. Patented Sept. 30, 1884.

Fig. 5.

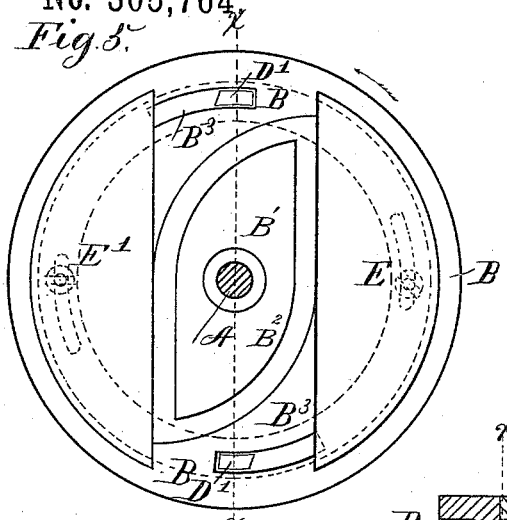


Fig. 4.

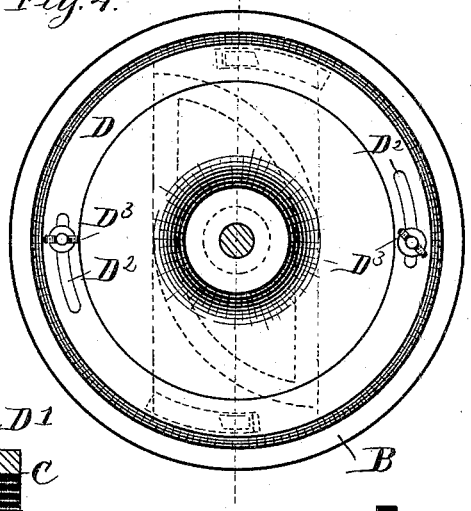


Fig. 6.

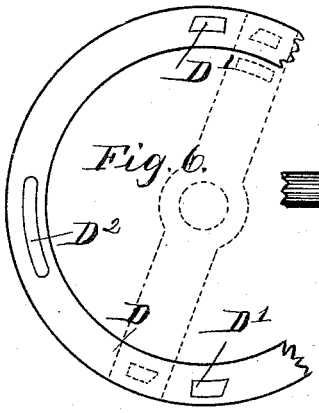


Fig. 1.

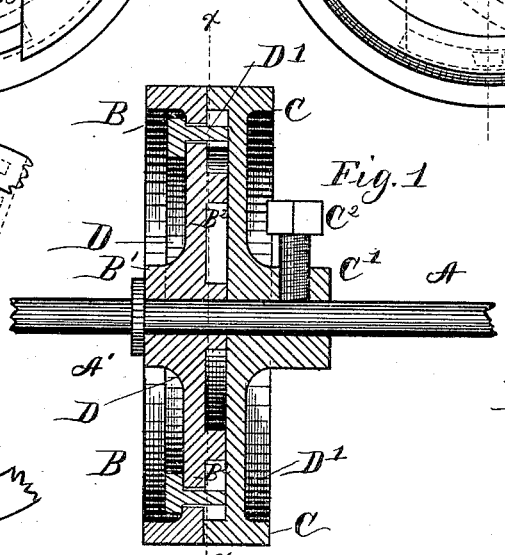


Fig. 7.

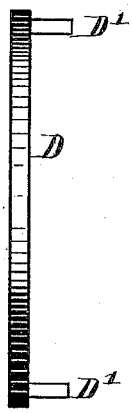


Fig. 3.

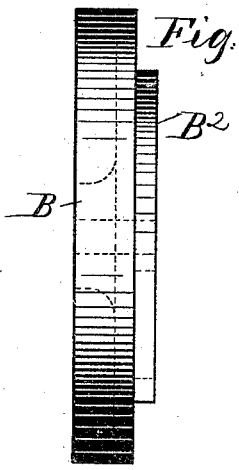


Fig. 2.

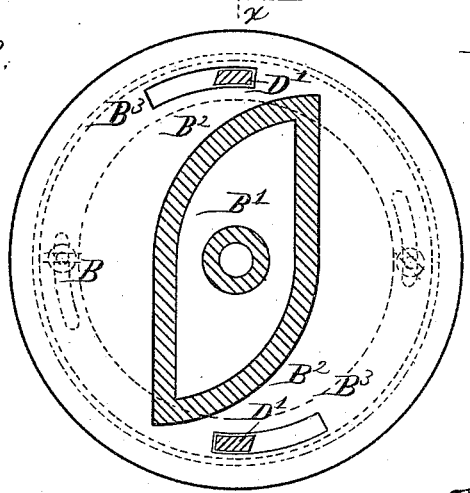


Fig. 8.

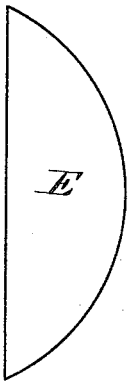
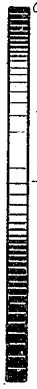


Fig. 9.



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S. C. Fitzgerald
Attorney.

UNITED STATES PATENT OFFICE.

ANSON D. SIMPSON, OF NIVERVILLE, NEW YORK.

GRAVITY FRICTION-RATCHET.

SPECIFICATION forming part of Letters Patent No. 305,764, dated September 30, 1884.

Application filed June 5, 1884. (No model.)

To all whom it may concern:

Be it known that I, ANSON D. SIMPSON, a citizen of the United States, residing at Niverville, in the county of Columbia and State of New York, have invented certain new and useful Improvements in Gravity Friction-Ratchets; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The object of this improvement is a simply and economically constructed double-acting gravity friction-ratchet pulley, for transmitting power from one revolving member to another without lost motion, that can be adjusted out of gear or caused not to transmit its motion when revolved in either direction. These results are attained by the mechanism illustrated in the drawings herewith filed as part hereof, in which the same letters of reference denote the same parts in the different views.

Figure 1 is a transverse vertical section of a double-acting friction-ratchet fully embodying the features of my improvement. Fig. 2 is a sectional side elevation on line *x x*, Fig. 1, of detached parts. Fig. 3 is an edge view of the same entire. Fig. 4 is a side elevation of the pulley entire detached from the shaft. Fig. 5 is an inner side view more fully illustrating the construction and relative position of the parts. Fig. 6 is a sectional side elevation of one of the parts. Fig. 7 is an edge view of the same. Fig. 8 is a side view of one of the segmental parts. Fig. 9 is an edge view of the same.

A is a shaft having a shoulder, A′.

B is a disk having recessed outside hub, B′, and inner eccentric projection, B^2, and slots B^3.

C is a disk recessed inside and outside and having hub C′, provided with a set-screw, C^2, by means of which the disk C is rigidly secured to the shaft A, to which the disk B is snugly but loosely fitted.

D is a circular piece having inner lateral projections, D′, and slots D^2, through which the same is secured to the disk B by means of studs attached to the latter and thumb-screws D^3, for a purpose hereinafter set forth.

E E′ are disk-segments neatly but loosely fitting the recessed inside of the disk C between the inner circumference of its rim and the eccentric inner projection, B^2, of the disk B.

When the disk C is revolved in the direction of the arrows, the loose segments E E′ will bind against the eccentric hub B^2 of the loose disk B, and cause it to revolve in the same direction. When the disk C is moved inversely to the direction of the arrow, the pieces B will not bind, but be carried around in the disk. By adjusting the circular piece D in a manner to bring its inner projections, D′, against the inner edges of the segments E E′, and securing the piece D in such position, the segments E E′ will not bind either way, and the disks B and C can be simultaneously moved in different directions. The piece D is made to form a circle, in order that the mechanism may not be thrown out of balance and made to pound by being heavier on one side than on the other. A transverse bar having an eye for clearing the shaft A, and a slotted circular extension and inner lateral projections corresponding to those of the ring D, (see broken lines, Fig. 6,) may be substituted for the latter, or any other similar means may be adopted that will not throw the pulley out of balance, and thereby cause the same to pound while in motion.

I employ a double-tangent hub, forming a double eccentric, so that the straight sides of the segments, when placed in position on the disk with the eccentric hub, will come in contact with the hub only at points directly opposite each other where the tangent meets the arc, and consequently the line of pressure fall directly through the center of the shaft at opposite points, and thereby insure a perfect clutch or binding. Where the "inner edges of the segments are eccentric to the axis of the shaft," and the "cam or dog" has such great length of bearing, as in the patent to Dana, No. 254,283, February 28, 1882, there is no certainty of the pressure being opposite, and consequently not liable to clutch, but liable to be carried around in either direction without binding.

I do not in this case claim any invention in an application filed by me January 17, 1884, No. 117,846, for a gravity friction-clutch, ex-

cept those specifically set forth in the claims hereof, and which form a part of this specification.

Having explained the construction and operation of my improvement, what I claim as new, and desire to secure by Letters Patent, is—

1. The loose slotted disk B, having eccentric inner projection, B^2, the recessed disk C, and segments E E′, and the adjustable ring D, having inner projections, D′, arranged to operate substantially as specified, for the purpose set forth.

2. In a gravity friction-ratchet, the combination, with the disk having a double-tangent hub forming a double eccentric, of the two segments having their inner edges straight, in order to engage the hub at a point where the tangent meets the arc, and having their outer edges curved on a regular semicircular line, and of the circular cap fitting over the pieces, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

ANSON D. SIMPSON.

Witnesses:

MILTON I. DOWNING,

LAURA J. SIMPSON.