

(No Model.)

G. B. SCOTT.
PRINTING TELEGRAPH.

No. 431,784.

Patented July 8, 1890.

Fig. 1.

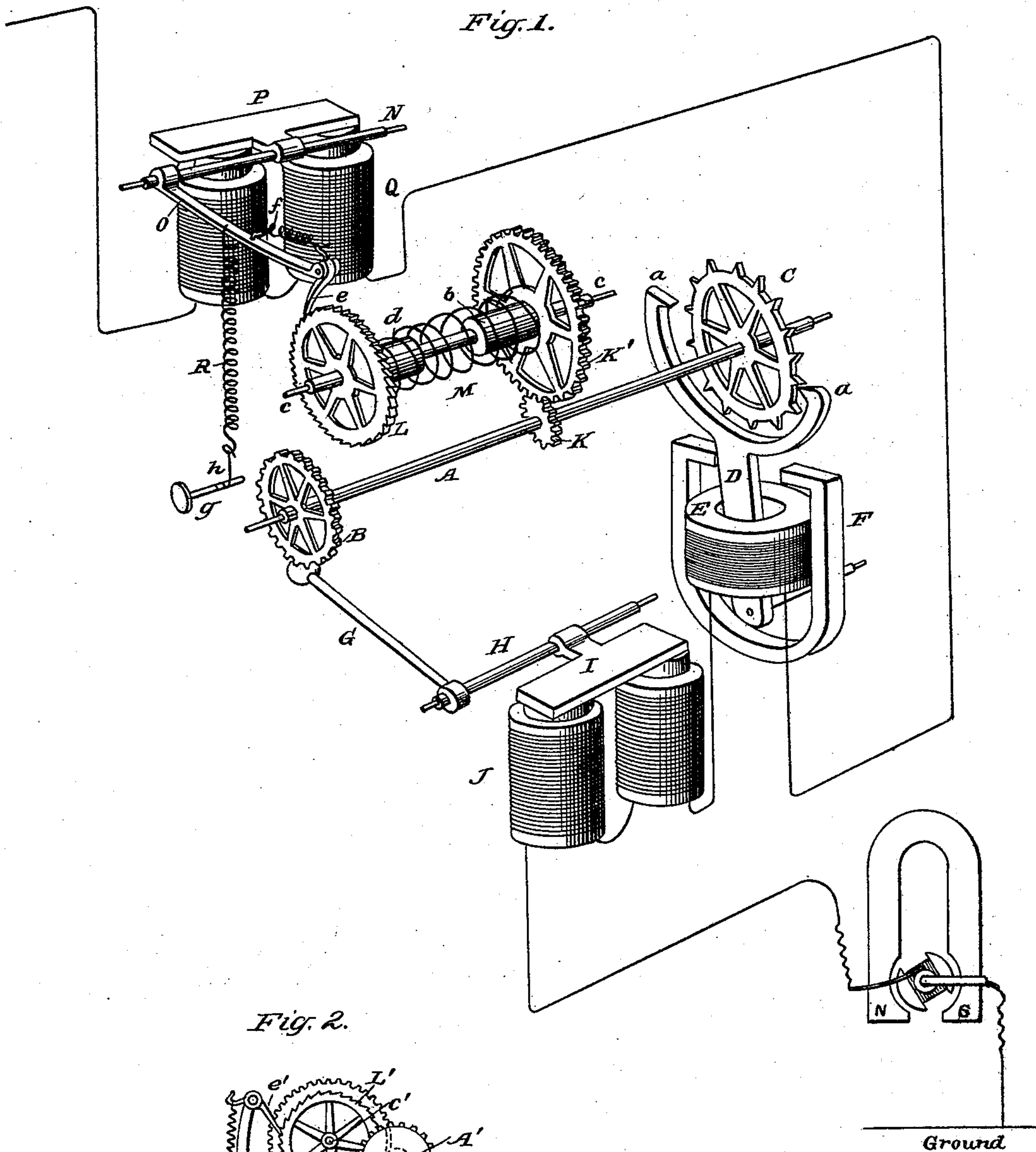
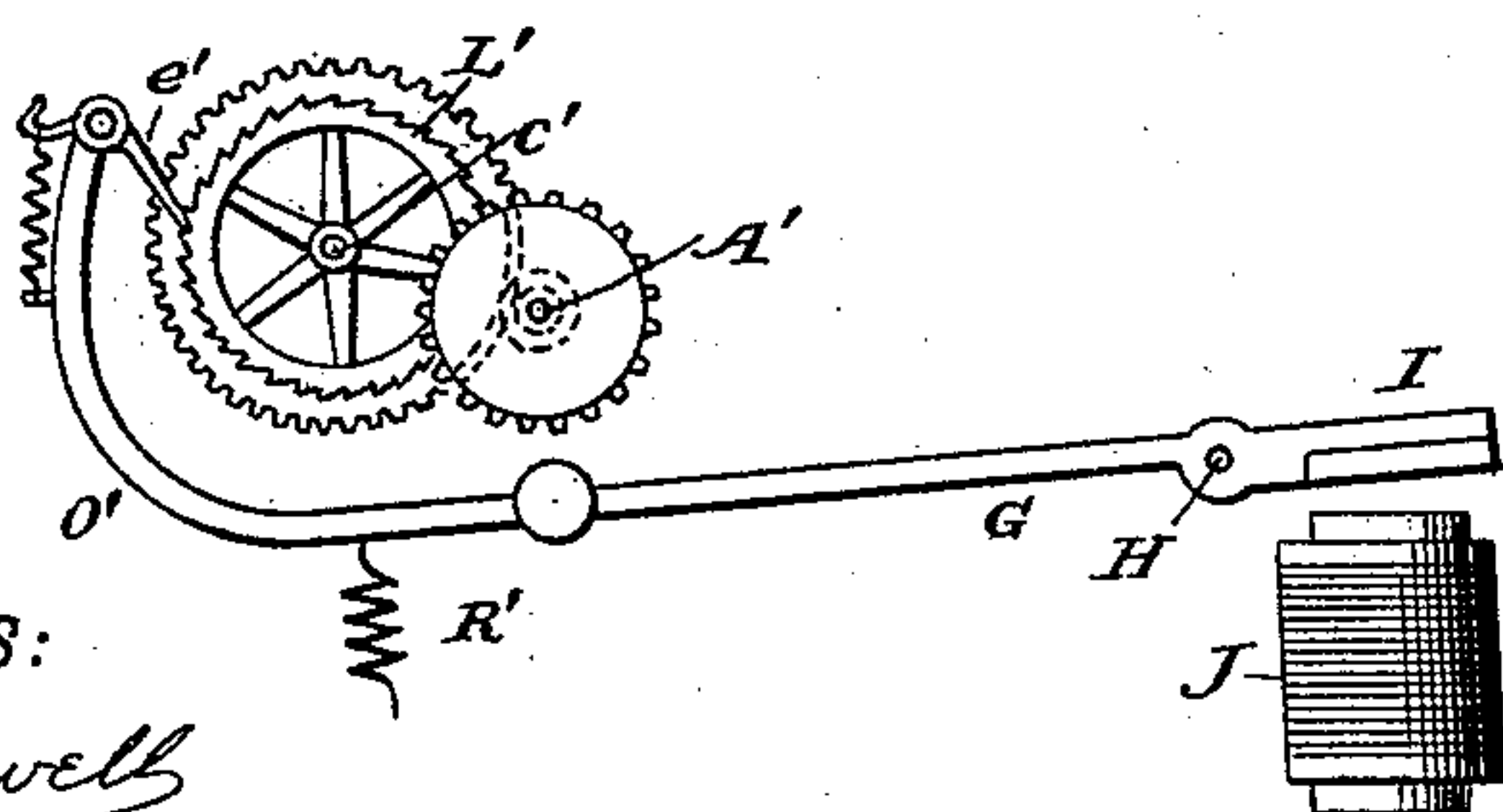


Fig. 2.



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PRINTING-TELEGRAPH.

SPECIFICATION forming part of Letters Patent No. 431,784, dated July 8, 1890.

Application filed May 18, 1889. Serial No. 311,292. (No model.)

To all whom it may concern:

Be it known that I, GEORGE B. SCOTT, of Lakewood, in the county of Ocean and State of New Jersey, have invented a new and Improved Printing-Telegraph, of which the following is a specification, reference being had to the annexed drawings, forming a part thereof, in which—

Figure 1 is a perspective view of the working parts of my improved printing-telegraph, the frame having been omitted to more clearly show the working parts; and Fig. 2 is a side elevation of a modified form of the type-wheel, actuating mechanism.

Similar letters of reference indicate corresponding parts in both views.

The object of my invention is to construct a printing-telegraph in which the type-wheel shaft will be propelled by power derived from the impulses sent over the line in the ordinary working of the instrument.

My invention consists in a printing-telegraph provided with a ratchet-wheel and pawl arranged to be actuated by a magnet placed in the main circuit or one of the magnets commonly used in printing-telegraphs, the said ratchet-wheel being connected through the medium of a spring with the type-wheel shaft, all as hereinafter more fully described.

The type-wheel shaft A is provided at one end with the type-wheel B and at the opposite end with the scape-wheel C, in the usual way. The scape-wheel C is engaged by pallets *a a*, carried by the oscillating armature D, which is supported by the shaft *a'*. The armature D is encircled by a helix E, outside of which is arranged a permanent magnet F, with inwardly-turned polar extremities, which attract the armature D. The printing-lever G, which presses the paper against the type-wheel B, is secured to a rock-shaft H, journaled in the frame of the machine and carrying the armature I. Below the said armature I is arranged the printing-magnet J, which is made to act upon the armature I in the manner presently to be described.

The type-wheel shaft A is provided with a pinion K, which is engaged by a spur-wheel K', carried by the sleeve *b*, mounted loosely on the shaft *c* near one end thereof. To the opposite end of the shaft *c* is attached the

boss *d* of the ratchet-wheel L. To the ratchet-wheel is secured one end of a spiral spring M, the opposite end of which is attached to the spur-wheel K'.

In the frame of the machine (not shown) is journaled a rock-shaft N, which carries an arm O, to the free end of which is pivoted a pawl *e*, which is adapted to engage the ratchet-wheel L, the pawl being forced into engagement with the ratchet-wheel by a light spiral spring *f*, connected with the pawl and with the arm O. The rock-shaft N carries an armature P, which is within the field of a magnet Q, placed in the line-circuit. A spring R is connected with the arm O and arranged to oppose the pull of the magnet Q. The spring R is provided with a tension-adjusting key *g*, a thread *h* being wound on the key and connected with the spring.

The escapement-armature D is oscillated by rapid reversals of the current on the line. The same alternating current draws down the armature P in opposition to the pull of the spring R and releases the armature, allowing the spring to act. The downward pull of the said spring brings the pawl *e* into engagement with the ratchet-wheel L, thus causing the ratchet-wheel to turn, thereby winding the spring M with sufficient tension and frequency to impart to the wheel K' all the power required to operate the type-wheel shaft A, thus avoiding the necessity of winding the propelling mechanism of the printer at stated intervals.

I dispense with a retaining-pawl in connection with the ratchet-wheel L, as I have found by experiment that the inertia of the wheel prevents any retrograde movement in the intervals between the engagements of the pawl *e* with the ratchet-wheel.

Whenever the rapid alternations of the current cease and the current is allowed to flow continuously in one direction for an appreciable length of time, the printing-magnet J becomes energized and the printing takes place in the usual manner while the type-wheel is at rest.

In the modification shown in Fig. 2 an arm O' is connected with the printing-lever G, forming a prolongation thereof, and carries at its free extremity a spring-actuated pawl

e', which engages a ratchet-wheel *L'* on the shaft *c'*. The arm *O'* is drawn down by the retractile spring *R'*, thus operating the shaft *c'* through the medium of the pawl *e'* and ratchet-wheel *L'*. The impulses which accomplish the printing being less frequent than those which actuate the escapement, the gearing for operating the type-wheel shaft will have to be modified so as to multiply the revolutions of the shaft *c'* sufficiently to cause the scape-wheel upon the shaft *A'* to keep up with the escapement.

In connection with my devices I use an alternating current generated by a battery and alternated or reversed by a pole-changer of any ordinary well-known construction, or I generate alternating currents by means of a magneto-electric machine known as the "Siemens H-armature machine." I have shown this form of alternating-current generator in my drawings; but I do not confine myself to this machine, as I may employ any known means of producing alternating currents.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In a printing-telegraph receiver, the combination, with the type-wheel shaft, of spring-actuating mechanism for driving the type-

wheel shaft, an electro-magnetic spring-winder, a telegraph-line permanently including the magnet of the spring-winder and adapted to be operated by every pulsation passing over the line, an alternating-current generator connected with the line, a scape-wheel magnet inserted in the line-circuit, and escapement mechanism constructed to control the operation of the type-wheel, substantially as described.

2. In a printing-telegraph receiver, the combination, with the type-wheel shaft, of a propelling-spring for maintaining the rotation of the shaft, a ratchet-wheel connected with the spring, a pawl adapted to engage the ratchet, a retractile spring connected with the pawl and constructed and arranged in conjunction with the pawl to move the ratchet-wheel and wind the propelling-spring, a winding electro-magnet placed in the line-circuit, an armature held within the field of the electro-magnet and connected with the pawl-carrying arm, and an alternating-current generator connected with the line, substantially as described.

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Witnesses:

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