E. T. GREENFIELD.

Mechanism for Laying Telegraph Wires.

No. 239,766. Patented April 5, 1881.

Fig. 1.

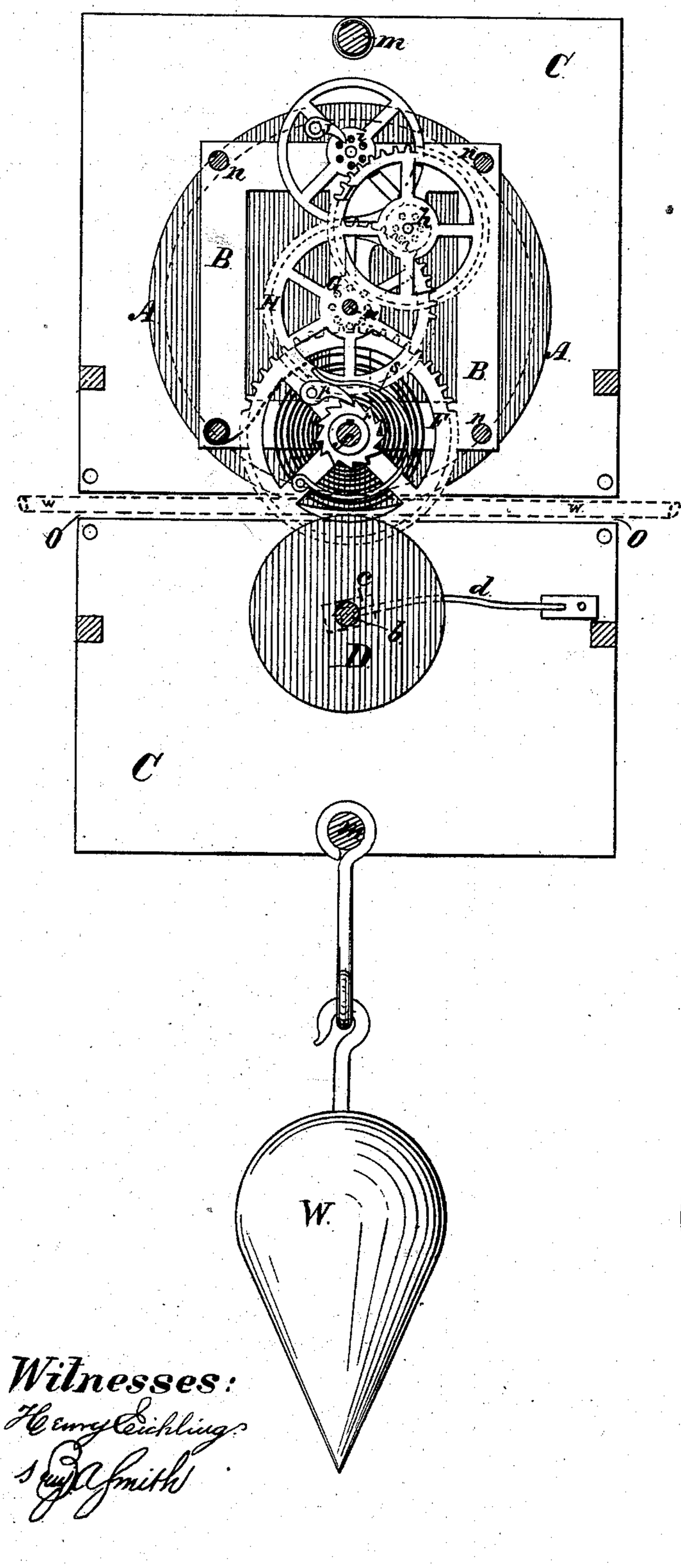
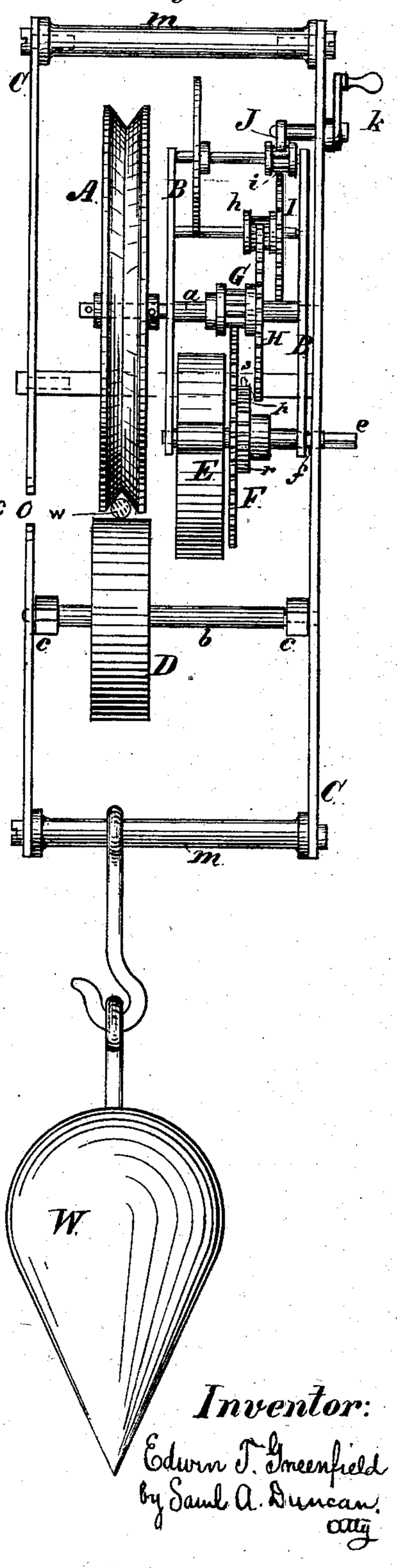


Fig. 2.



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UNITED STATES PATENT OFFICE.

EDWIN T. GREENFIELD, OF BROOKLYN, NEW YORK, ASSIGNOR OF ONE-HALF TO THE HOLMES BURGLAR ALARM TELEGRAPH COMPANY.

MECHANISM FOR LAYING TELEGRAPH-WIRES.

SPECIFICATION forming part of Letters Patent No. 239,766, dated April 5, 1881.

Application filed January 8, 1880.

To all whom it may concern:

Be it known that I, EDWIN T. GREENFIELD, of the city of Brooklyn, in the county of Kings and State of New York, have invented a new and useful Improvement in Laying Telegraphic Wires, of which the following is a specification.

In laying and repairing telegraphic lines it is often necessary to pass the wires over buildings intervening between the posts to which they are to be secured, and this has generally been done by drawing the wires over the buildings by men stationed thereon. In practice this plan has been found to be attended, not only with great trouble and delay in gaining access to the top of buildings, but oftentimes, especially in cities, admittance for this purpose has been denied.

It is the object of this invention to provide means of conveying such wires from post to post without interfering with the premises over which they pass; and it consists in the method hereinafter described of laying or stringing telegraphic or similar wires, and also in the construction of the carrier used for this purpose, as hereinafter described and claimed. A carrier adapted for this purpose is hereinafter described, and is shown in the accompanying drawings, in which—

Figure 1 is a side elevation of such carrier with its front plate removed, and Fig. 2 is an end elevation of the same.

The main parts of this carrier are a grooved wheel, a friction-roller, and a coiled spring arranged and operating to hold the carrier upon the wire and to drive it along its length.

The grooved wheel (represented in the drawings by A) is secured to its shaft *a*, which is journaled in an auxiliary frame, B, which is firmly secured to the main frame C.

D is a friction-roller located beneath the grooved wheel A, and having its shaft *b* journaled in enlargements *c c* on the free ends of springs *d d*, which constantly force the roller D upward and press the wire or other material between the face of the roller and the grooved wheel. The other ends of the springs *d d* are secured to the sides of the main frame or case C.

E is the mainspring, having one end secured to a cross-bar of the case C, while the other end is attached to the shaft *f*, around which the spring is coiled, and it is tightened or wound up by turning this shaft.

F is a main wheel loose on the shaft *f*, which is journaled in the walls of the frame or case B, and has its winding-stem *e* projecting through the wall of the case C. Contiguous to the wheel F, and fast to the shaft *f*, is a ratchet-wheel, *r*, whose pawl *p* is attached to the wheel F and is governed by a spring, *s*. This ratchet and pawl operate to hold the slack of the spring D as it is taken up in winding, and also compels the wheel F to turn backward upon the shaft *f* when it revolves in that direction. The wheel F is provided with spur-teeth upon its periphery, which mesh with a pinion, G, on the shaft *a*.

H and I are additional spur-wheels meshing with the pinions *h* and *i*, which, by lengthening the train, serve to regulate the speed of the wheel A. They may be omitted and any other usual device for regulating or controlling the speed of the wheel A be substituted.

J is a pawl, which acts upon the pinion *i* as a ratchet, in the usual way. To this pawl is attached a crank, *k*, by which the pawl is engaged and disengaged from the pinion.

m m, &c., are cross-bars connecting and holding together the sides of the frame C, and *n n*, &c., are bars of the frame B, for the same purpose.

O is an opening in one side of the case or frame C, contiguous to the grooved wheel A and the roller D, which permits the carrier to be properly engaged with a suspended wire or other line fastened at both ends.

W is a weight suspended to the lower part of the frame C, to counterbalance the weight of the carrier above the wire on which the carrier is supported, and *w* is the wire.

Instead of using a weight, W, to maintain the carrier in an upright position while in motion, the driving mechanism—that is, the devices secured in the frame B—may be adjusted in the lower part of the frame C, by which means the carrier is made self-supporting, and the counter-weight W may be dispensed with.

When one or more wires are stretched between two points, as two telegraph-poles, and

it is desired to lay or string other wires along the same course over any intermediate object, as a building, without the trouble and delay of sending a man to the top of such building to draw the wires across, this can be done by the use of the carrier in the following way: Wind up the spring E by the use of a crank-key or other proper tool applied to the stem *e* in the usual way of winding a clock, the slack of the spring taken up in winding being held by the pawl *p* and ratchet *r*, and the wheel F being prevented from turning in a forward direction by the pawl J and ratchet *i*. Seat the carrier by passing it laterally over the wire, the wire entering through the opening O in the frame or case, and bring the wire between the faces of the roller D and the wheel A, when the roller will pass and hold it firmly in the groove of the wheel. Disengage the pawl J from its ratchet, and the entire train is free to respond to the action of the spring E upon the shaft *f*, by which this shaft and its connected parts (the wheel F, its pinion G, and the wheel A, &c.) are caused to revolve. The revolution of the wheel A, while held in close frictional contact with the wire, causes the carrier to travel along the wire at a speed and to a distance limited only by the relation of the driving devices to each other, and by the strength and elasticity of the mainspring. By attaching one end of the wire to be laid to the carrier it can be conveyed to the desired point; or, in case the wire is too heavy to be transported by the driving-power of the carrier, by attaching one end of a light cord to the carrier it can be easily conveyed to the desired point, and by its use either the wire or a second cord of increased strength can be drawn over.

It is observed that the inclination of telegraphic wires is often as much as fifteen or twenty degrees, and that it is advantageous to have a carrier so constructed as to travel up such incline. The present construction is capable of accomplishing this, and by increasing the strength and elasticity of the mainspring and the frictional contact of the wheel A upon the wire a much steeper grade can be traversed.

It is not designed to limit the driving-power to the use of a coiled spring like that shown and described, nor, in fact, to any spring, as power generated by other means—*e. g.*, a toy engine—could easily be applied to drive the grooved wheel, although it is considered that a coiled spring like that shown in the drawings will furnish the cheapest power for this purpose, and will in most cases be sufficient to accomplish the desired result.

What is claimed as new is—

1. The hereinbefore-described method of laying or stringing telegraphic or similar wires, which consists in carrying the end of the wire from one point of attachment to another by means of a carrier moving automatically along another wire, which follows the general direction between such points, substantially as set forth.

2. In a carrier constructed to move along a wire, a grooved wheel, in combination with a friction-roller and driving mechanism, substantially as and for the purpose described.

3. In a carrier constructed to move along a wire, a main or driving spring, in combination with a grooved wheel and a friction-roller, substantially as and for the purpose set forth.

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