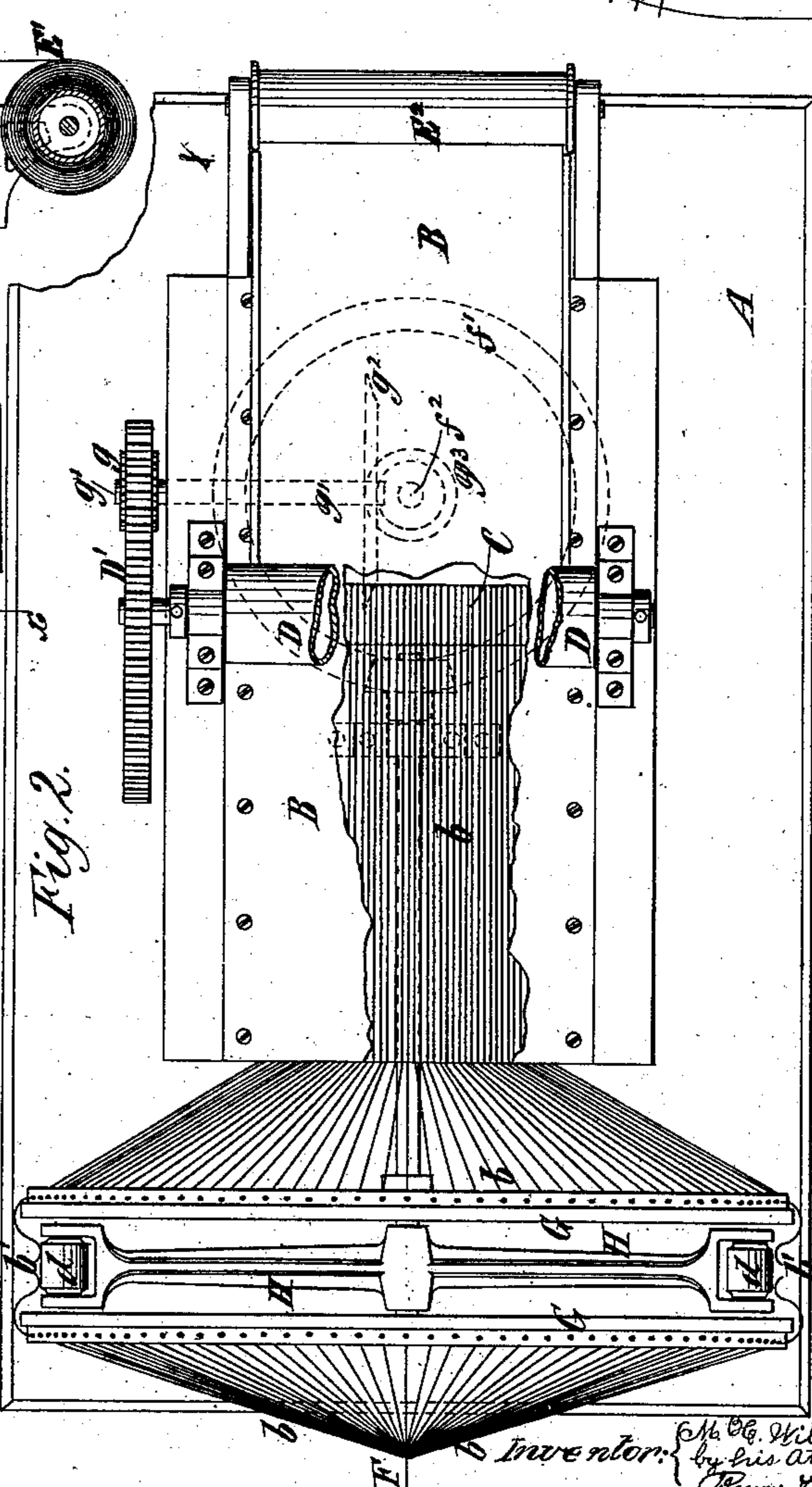
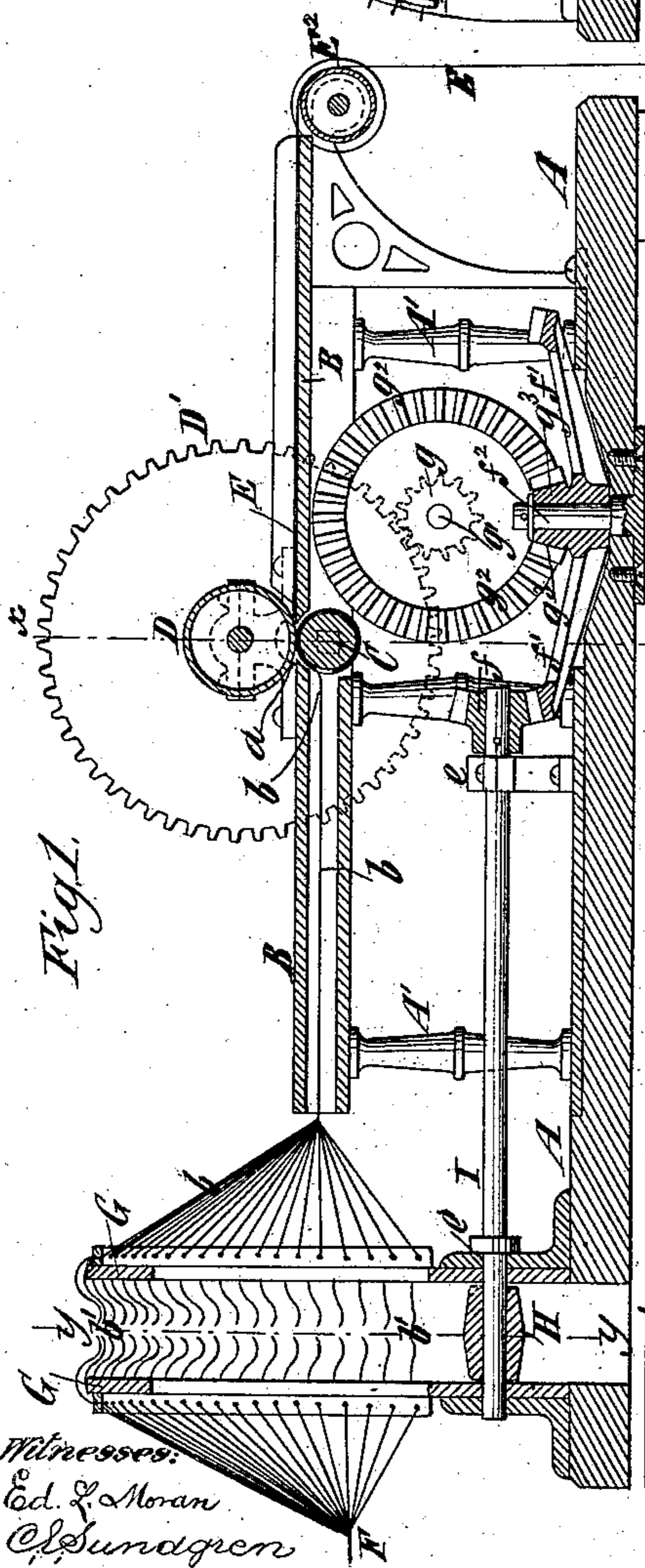
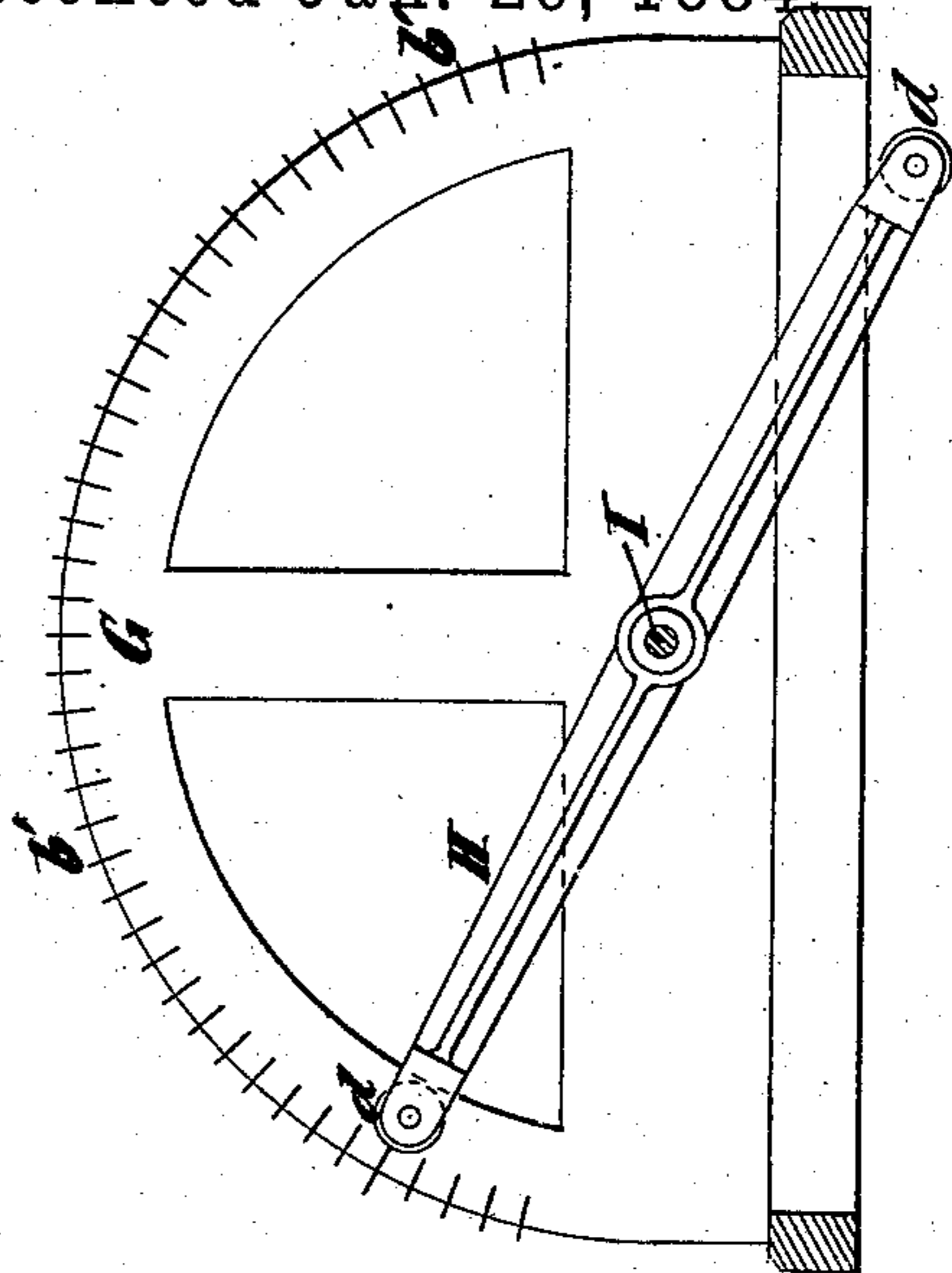


M. H. WILSON.
AUTOGRAPHIC TELEGRAPH.

Patented Jan. 29, 1884



Witnesses:
Ed. L. Moran
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UNITED STATES PATENT OFFICE.

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AUTOGRAPHIC TELEGRAPH.

SPECIFICATION forming part of Letters Patent No. 292,607, dated January 29, 1884.

Application filed June 11, 1883. (No model.)

To all whom it may concern:

Be it known that I, MICHAEL HOFFMAN WILSON, of the city of Brooklyn, in the county of Kings and State of New York, have in-
5 vented a new and useful Improvement in Autographic Telegraphs, of which the following is a specification.

Two systems of autographic telegraphs are well known. In one system a great number
10 of line-wires are employed, terminating in close proximity to each other and sufficient in number to cover the whole width of form which it is desired to reproduce. In the other system but a single line-wire is employed in con-
15 nection with a stylus or contact-point, which is made to reciprocate rapidly across the form from side to side thereof.

The object of my invention is to provide an apparatus for or a system of autographic
20 telegraphy which shall possess all the advantages of the first-mentioned system in having a great number of conductors or terminals arranged near together and extending the full width of the form to be reproduced, and which
25 shall possess the great advantage of the last-mentioned system in having but a single line-wire or conductor.

To this end my invention consists in the combination, with a rotary cylinder or other
30 means for producing the travel of the paper or other form bearing upon it the matter to be reproduced, of a single line-wire or conductor, a number of divided or severed branch wires connected with said line-wire, and hav-
35 ing their terminals arranged side by side in the path traversed by the paper or other form, and a commutator capable of movement past the adjacent ends of the divided branch wires, and serving by its movement to make contact
40 with the adjacent ends of said branch wires, and to successively close the circuit through said branch wires and the line-wire, as will be more fully hereinafter described.

The invention further consists in arranging
45 the adjacent ends of the divided or interrupted branch wires in an arc-shaped line, and in closing the circuit through them successively by rotating the commutator or cir-

cuit-closer between their ends, or by imparting to it a reciprocating or oscillating motion. 50

The invention further consists in details of construction and combinations of parts hereinafter described.

In the accompanying drawings, Figure 1 is a vertical longitudinal section of a machine
55 embodying my invention. Fig. 2 is a plan thereof partly in section. Fig. 3 is a transverse vertical section on the dotted line *x x*, looking toward the left, Fig. 1. Fig. 4 is a similar section on the dotted line *y y*, Fig. 1; 60 and Fig. 5 is a diagram illustrating on a small scale a telegraph-line organized for the use of my invention and comprising a single line-wire and two of the instruments shown in the preceding figures, each adapted to serve as a
65 transmitting and receiving instrument.

Similar letters of reference designate corresponding parts in all the figures.

A designates the base-plate or bed of the machine or apparatus, and B designates a ta-
70 ble mounted on suitable supports, A'.

Arranged below and extending transversely across the table, but projecting upward through an opening, *a*, therein, is a bar or support, C, here shown as of cylindrical form, and secured
75 to said bar C, of insulating material, are the ends of a large number of branch wires or conductors, *b*, which are insulated from each other and extend under the table B, as shown in Fig. 1. These branch wires or conductors *b*
80 may be of any suitable kind or character, and their ends are coiled around or otherwise attached to the bar C at very short intervals through its length. The ends of the wires *b* which are connected with the bar C may be
85 arranged from a sixteenth to a thirty-second of an inch apart throughout the length of the bar.

Immediately over the bar C, and above the table B, is a cylinder, D, which may be of cop-
90 per, and is located in the electric circuit.

I have shown in Fig. 3 wheels or rollers *c* on the ends of the bar C, which bear against and rotate by frictional contact with the cylinder D. The wheels or rollers *c* may be made
95 of or covered with india-rubber, so as to bear

against the cylinder D with considerable pressure, and if made of rubber they may be provided at the center with metallic thimbles or hubs, which allow the rollers to turn freely on their bearings or journals.

E designates the paper or other material on which is delineated the writing or other matter to be reproduced. The paper constitutes a form, and a form of any other material may be substituted. The paper may be made of conducting material, and the message, form, or matter to be reproduced be written or otherwise delineated thereon in a non-conducting ink or fluid. In the transmitting-machine the paper on which messages are written may be in sheets; but in the receiving-machine the reproduction may be obtained upon a roll of paper, which may be wound upon a drum or reel, E', being drawn thereto over a guide-roller, E². The paper containing the message or form to be transmitted is carried between the cylinder D and bar C by the rotation of the said cylinder, and being wider than the distance between the wheels or rollers c, its edges are grasped between the said wheels or rollers and the cylinder D, and by the rotation of said cylinder it is drawn or fed forward over the terminal portions of the branch wires b. As the characters in non-conducting ink or fluid pass over said terminals the circuit from the cylinder D to said terminals is broken. In lieu of the form E being drawn or fed forward by the cylinder D and wheels or rollers c, it may be wound or placed around the cylinder, and this plan will be desirable when the form is short. The cylinder may then be provided with clamps or clips of any suitable character for holding the form thereon at its front and rear edges. The branch wires b are all connected or make circuit with a single line, F, common to all the branch wires, as shown in Figs. 1 and 2. The branch wires are not, however, continuous or unbroken between their terminals at the bar C and the main-line wire F, but are divided or interrupted, as clearly shown in Figs. 1 and 2.

G G designate semicircular or arc-shaped supports, which are placed at a little distance apart, and to which the adjacent ends b' of the interrupted or divided branch wires b are secured, and by which the adjacent ends of the several wires are held in uniform relation to and insulated from each other.

Between the supports G is arranged a commutator, which, as here shown, consists of a bar, H, mounted on a rotary shaft, I, and carrying at its ends contact rollers or pieces d, which are of conducting material and insulated from the bar H, in which they are pivoted. The shaft I is mounted in suitable bearings, e, and has at its end a bevel-pinion, f, engaging with a bevel-wheel, f', mounted upon a fixed stud, f². Upon the shaft of the cylinder D is secured a large wheel, D', gearing with a pinion, g, on a horizontal shaft, g', and upon the latter shaft is secured a large bevel-wheel, g², which gears with a bevel-pinion, g³, formed

with or rigidly fixed to the large bevel-wheel f'. It will be observed that this arrangement of gearing is such that while the cylinder is rotated very slowly the commutator H will rotate very rapidly. I may adopt any other system of gearing which will produce like results. As the commutator-bar H is rotated its contact-rollers d are brought into action alternately, and as each is moved through the range of the adjacent interrupted ends b' of the divided branch wires b it makes and breaks the circuit through the wires successively and with great rapidity, and after one roller has passed the range of the branch wires the other comes into action. By means of this commutator the circuit through all the branch wires is made and broken while the cylinder D advances the form a very short distance—say a thirty-second of an inch—and by suitably proportioning the gearing connecting the commutator and the devices for feeding the form forward the commutator may make and break circuit through all the branch wires while the form is moved a distance which is almost imperceptible.

The cylinder D may be rotated at a uniform speed by clock-work or other means; but as this forms no part of my invention I have not thought it necessary to illustrate it.

In lieu of operating the commutator by a rotary motion continuously in one direction, I may give it a reciprocating motion by oscillating it; or I may arrange the adjacent ends of the branch wires in a straight line and employ a commutator operating with a rectilinear reciprocating movement and carrying a conducting roller or piece for making contact successively with the adjacent ends of the wires.

I have represented in Fig. 5 a telegraph-line for using my invention. Two instruments like that before described are employed, each of which serves both as a transmitting and receiving instrument. With the cylinder D of each machine there is connected a battery, S, and the line-wire F has connected with its opposite ends all the divided branch wires b of the two machines.

The motors of the two machines or instruments may be synchronously-operating clock-movements with regulators, and when at rest they may be stopped with the rotary arms of the commutators in exactly corresponding positions. They may be started together by the simultaneous withdrawal of stops by the closing of the line-circuit. The preservation of synchronism may be effected in the same way as in other autographic telegraphs.

The branch wires b, instead of having their interrupted ends b' brought directly within the range of the rollers d, or equivalent conducting-pieces carried by the bar H or other moving part of the commutator, may be connected with stationary conductors insulated from each other in the frames G G or other stationary portions of the commutator.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination, with means for producing the travel of the form, of a single line-wire and a number of divided or severed branch wires connected with said line-wire and having their terminals arranged in the path traversed by the form, and a commutator placed between the separated ends of the said branch wires and serving to close the circuit through the several branch wires in succession, substantially as and for the purpose described.

2. The combination, with means for producing the travel of the form, of a single line-wire and a number of divided or severed branch wires connected with said line-wire, having their terminals arranged in the path traversed by the form, and having their separated ends arranged in arc-shaped or circular series, and a rotary commutator adapted to make contact with said ends and to successively close the circuit through the several branch wires, substantially as and for the purpose herein described.

3. The combination, with a rotary cylinder for producing the travel of the form, of a single line-wire and a number of divided or severed branch wires connected with said line-wire and having their terminals arranged in the path traversed by the form, and a commutator geared with said cylinder and moving between the separated ends of the divided branch wires to successively close the circuit through them, substantially as and for the purpose herein described.

4. The combination of the cylinder D, the divided branch wires *b*, the bar C, with which the terminals of said branch wires are connected, the support G for the interrupted adjacent ends of said wires, the rotary commutator H *d*, and means for rotating said cylinder and commutator, substantially as herein described.

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Witnesses:

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ED. L. MORAN.