

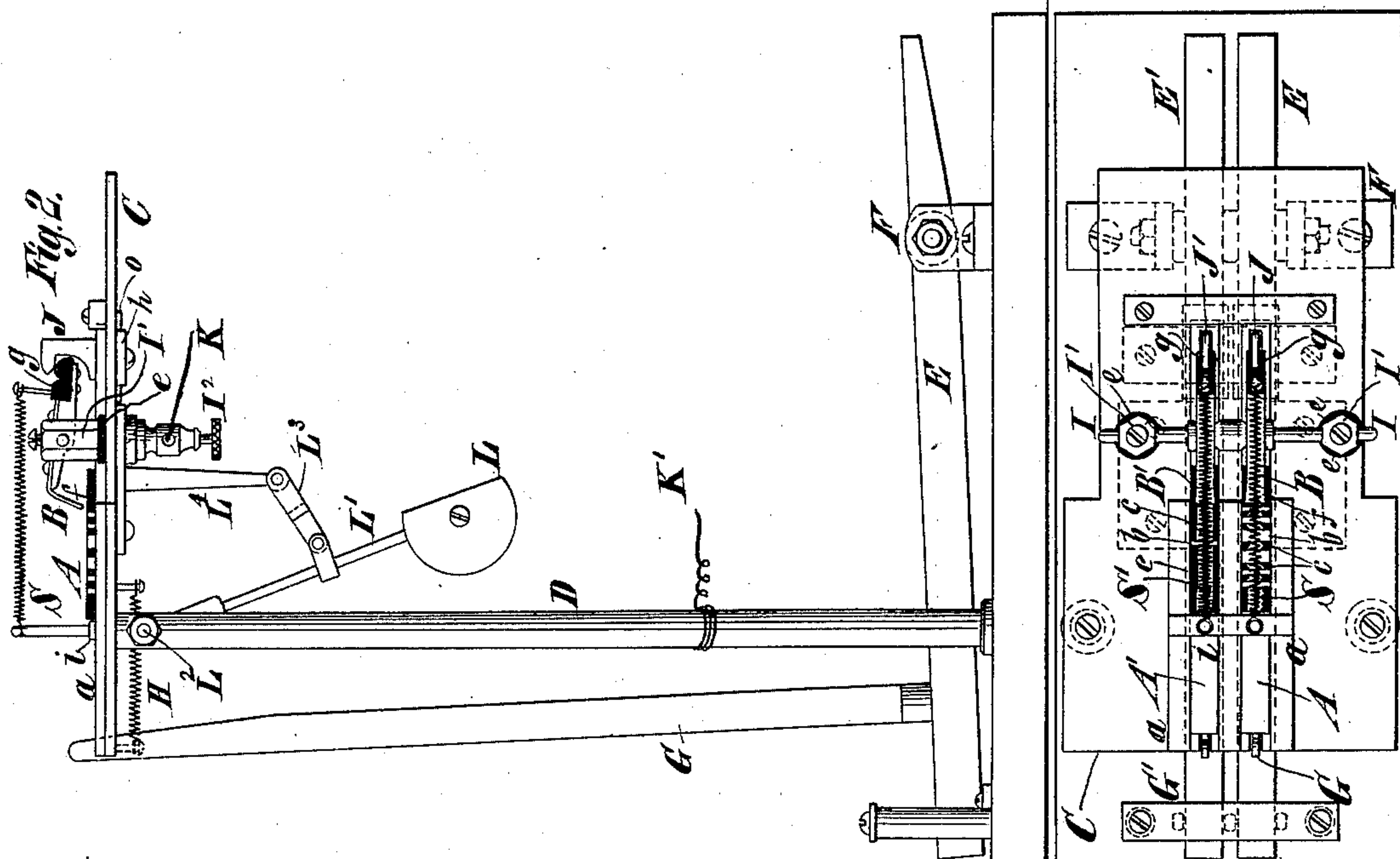
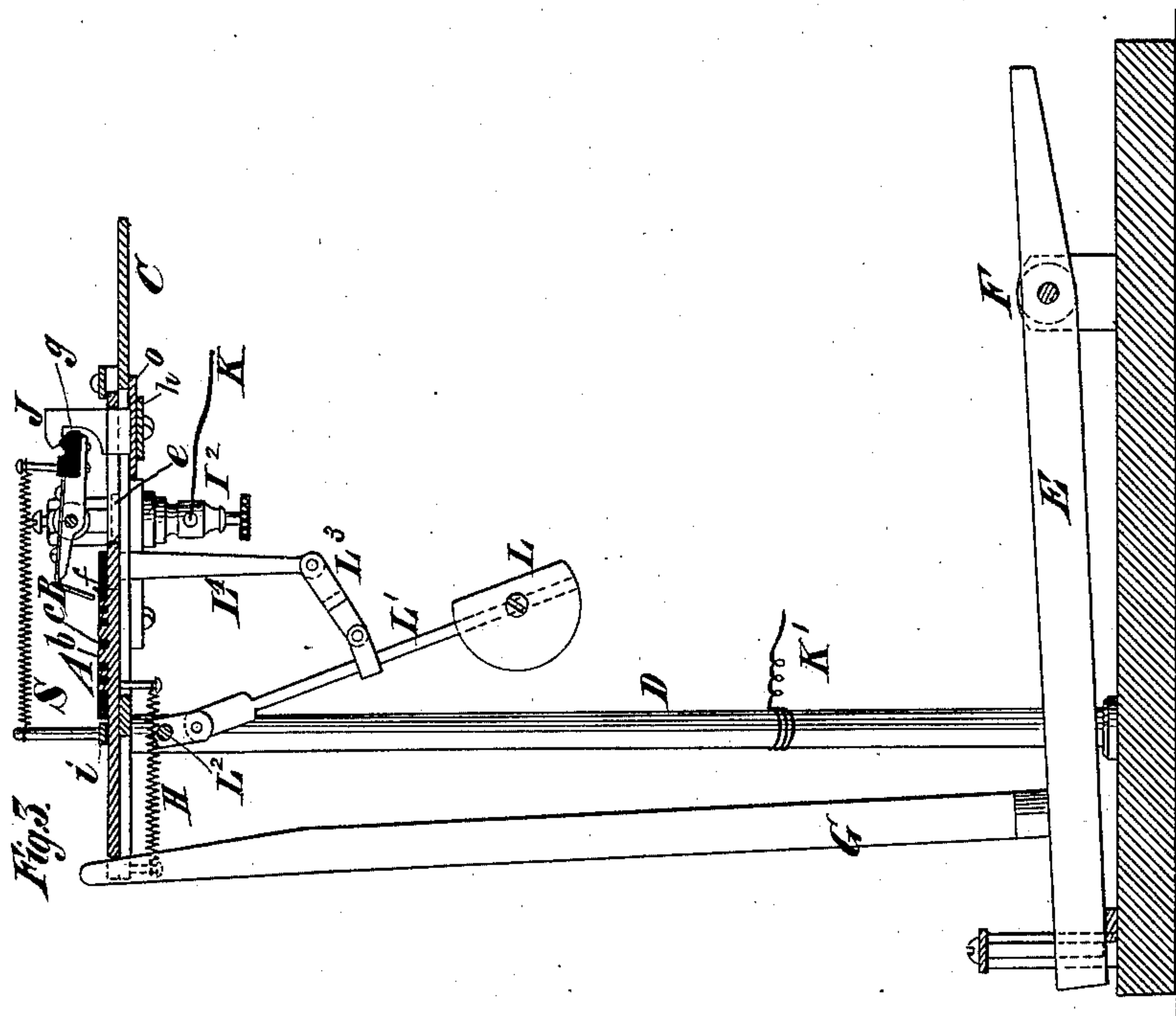
(No Model.)

2 Sheets—Sheet 1.

C. G. SPENGLER.
TELEGRAPHIC TRANSMITTER.

No. 302,360.

Patented July 22, 1884.



Witnesses:

James K. Bowen.
Alfred L. Brown.

Inventor:

Exh. 1.
C. G. Spengler,
by his atty.
Edwin H. Brown.

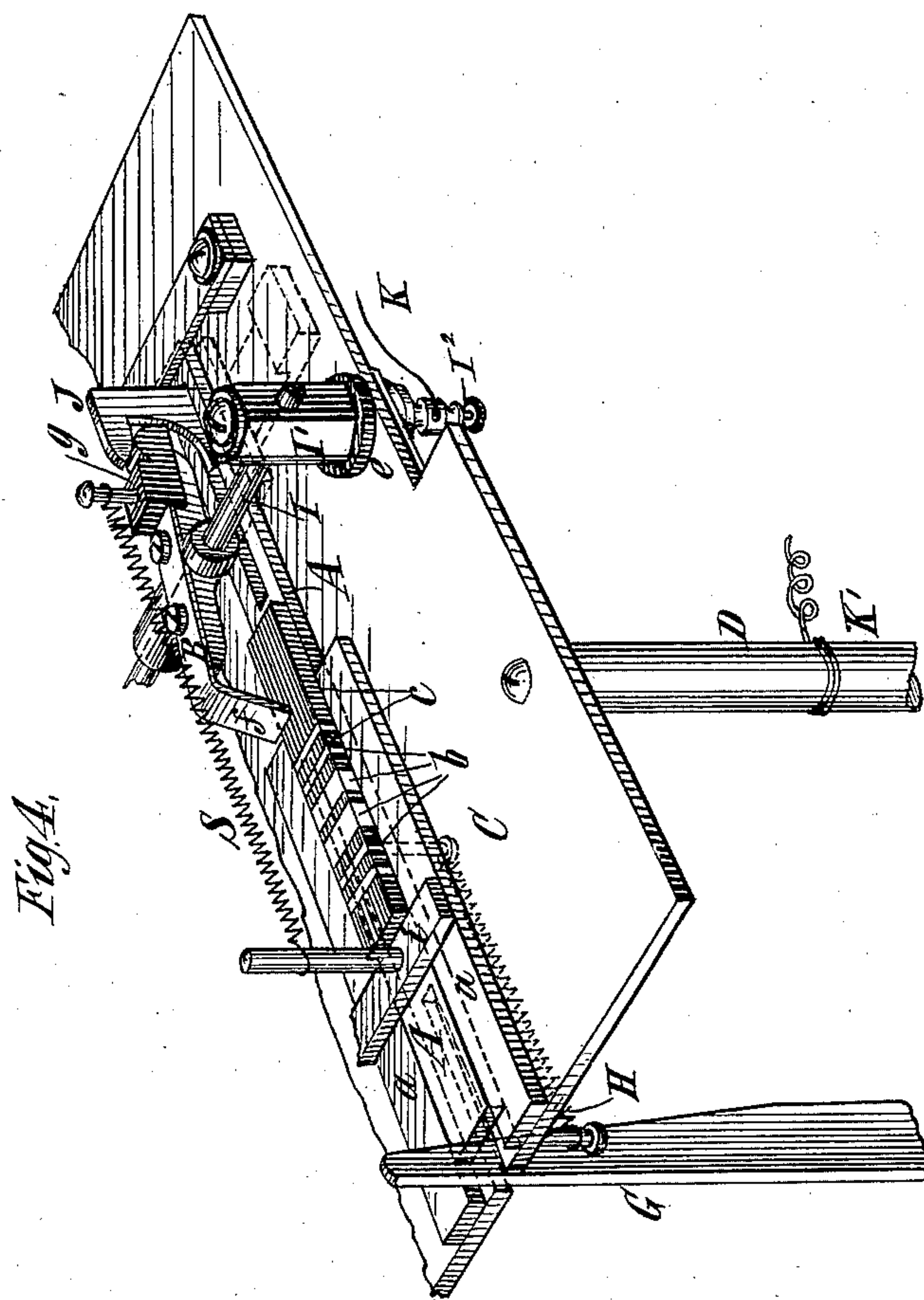
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Chandler Hall
James R. Bowen.

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Christian G. Spengler
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UNITED STATES PATENT OFFICE.

CHRISTIAN G. SPENGLER, OF HOBOKEN, NEW JERSEY, ASSIGNOR TO WILLIAM A. LEGGO, OF MONTREAL, CANADA.

TELEGRAPHIC TRANSMITTER.

SPECIFICATION forming part of Letters Patent No. 302,360, dated July 22, 1884.

Application filed April 4, 1883. (No model.)

To all whom it may concern:

Be it known that I, CHRISTIAN G. SPENGLER, of Hoboken, in the county of Hudson and State of New Jersey, have invented a certain new and useful Improvement in Telegraphs, of which the following is a specification.

My improvement relates to telegraphs of the kind wherein a single manipulation made by an operator will cause the transmission of the whole of any telegraphic letter or symbol, even though it may be delineated when transmitted by a number of dots, dashes, dots and dashes, or other marks. Telegraphs of this kind are desirable, among other reasons, because they are capable of transmitting messages with greater rapidity and can be operated by persons who have little or no skill.

The invention consists in the combination, in a telegraphic transmitter, of a sliding contact-piece and another contact-piece operating in conjunction therewith and movable toward and from the sliding contact-piece in a direction transverse to the line of movement of said sliding contact-piece, and means for imparting motion to the contact-pieces for the purpose of transmitting the telegraphic signal, letter, or symbol.

The improvement also consists in certain combinations of parts, hereinafter described and claimed.

A telegraphic transmitter embodying the improvement may be used to transmit messages to a receiving-instrument at a distant point, or to a mechanism on which they may be recorded, and from which they may subsequently be transmitted to a receiving-instrument at a distant point.

In the accompanying drawings, Figure 1 is a plan of a telegraph-transmitter embodying my improvement. Fig. 2 is a side view of the same. Fig. 3 is a longitudinal section of certain parts, and Fig. 4 is a sectional perspective view of a part of the transmitter on a larger scale.

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

A A' B B' designate pairs of contact-pieces, whereby the electric circuit of the telegraph is completed and interrupted in the transmission of messages. The contact-pieces A A' in

this example of my improvement consist of slides adapted to move in ways or guides *a* upon a platform, C. The platform C is made of metal and mounted on pillars D, and the base portions of the slides forming the contact-pieces are likewise of metal; hence an electric current can pass from the platform to the said slides. The faces of these slides are composed of metal pieces *b* and pieces *c*, of insulating material, interposed between the said metal pieces *b*. The metal pieces *b* are in contact with the metal base portions of the slides; hence an electric current can pass to them from the said base portions.

E E' designate levers or keys fulcrumed in a stand, F, and having their rear ends fitted between upright rods or posts, so that they will be guided in their movements. Extending upwardly from these levers, near the rear end, are arms G G', which work through slots in the platform C and operate upon the rear ends of the contact-pieces A A'. The levers may be made of wood and the arms of metal, if desired. When the forward ends of the levers E E' are depressed, their arms G G' will force the contact-pieces A A' forward. Preferably the upper parts of the arms G G', which impinge on the contact-pieces A A', are inclined, as shown, as they will, when so made, impel the said contact-pieces forward, not only with a force due to their bodily movement forward, but also with an additional impulse due to the raising of their inclined surfaces in a plane transverse to the plane in which the contact-pieces move. A depression of the forward end of the levers through a short distance will produce quite a long range of movement of these contact-pieces. Springs H, attached to pins extending from the under side of these contact-pieces, and to other pins extending from the under side of the rear portion of the platform, draw the contact-pieces rearward, and cause the latter to push back the arms G G', and thereby depress the rear ends and elevate the forward ends of the levers E E'.

The contact-pieces B B' are made of metal, and are mounted on a metal rock-shaft, I. This rock-shaft I is supported in posts or standards I', which are erected upon the plat-

form C, but insulated from it by gaskets or washers *e*, of hard rubber or other suitable material. At the rear ends of these contact-pieces B B' are finger-like portions *f*, sufficiently thin to enable them to impinge upon any of the metal pieces *b* or insulating-pieces *c* of the contact-pieces A A' without extending beyond the same. On the forward ends of the contact-pieces B B' are blocks *g*, of insulating material, upon which operate rockers or devices J J', whereby these contact-pieces are rocked at intervals. The rockers J J' are preferably made of narrow pieces of metal, and they extend through slots in the platform C, and through slots in the contact-pieces A A' from base-pieces *o*, which fit in slides *h*, attached to the under side of the said platform. When the contact-pieces A A' are moved forward, they impel the rockers J J' forward, and when they are moved backward they move the rockers backward. They effect these movements of the rockers by the ends of their slots, through which the rockers extend, acting upon the rockers. They have a much longer range of movement than the rockers, and act upon these devices only at the ends of their movements. The upper ends of the rockers are extended over rearwardly, and have their rear-most extremities inclined on the under side, and the blocks of insulating material at the forward ends of the contact-pieces B B' are correspondingly inclined. The rearwardly-extending upper ends of the rockers J J' are of such height that when they ride over the insulating-pieces *g* of the contact-pieces B B' they will depress the forward ends of said contact-pieces, and by rocking said contact-pieces will elevate the finger-like portions *f* at their rear ends; hence when the rockers are moved rearward they ride over the forward ends of the contact-pieces B B', and thereby elevate the rear ends of the latter. When the rockers are moved forward, they pass beyond the reach of the contact-pieces B B' and release the latter. Whenever these contact-pieces B B' are thus released, their rear ends are impelled downward upon the faces of the contact-pieces A A' by means of springs S S', extending from pins arranged upon the said contact-pieces to pins erected on a bar, *i*, extending over the ways or guides *a* of the contact-pieces A A'. There will be a number of the pairs of contact-pieces, their levers or keys, and other appurtenances, equal to the entire number of symbols to be transmitted. Each pair of contact-pieces A B and A' B', &c., is adapted and designed to transmit the whole of a symbol.

One wire, K, from the battery or other source of electricity connects with a binding-screw, I², which is made of metal and in contact with one of the posts I', which support the rock-shaft I. The other wire, K', from the source of electricity is connected to the platform C, or, if the supporting-pillars D are made of metal, to one of them.

It will be readily understood from the foregoing description that when the forward end of one of the levers or keys E E', &c., is depressed the contact-piece A or A', &c., actuated thereby, will be moved forward, and the corresponding contact-piece, B or B', &c., will be maintained out of contact with it during such movement; but when the lever or key is released the contact-piece A or A' will be moved backward by the spring H, and during such movement a number of completions and interruptions of the electric circuit being thus made, suitably to transmit the letter or symbol which is designed to be transmitted when that particular key or lever is operated. The contact-piece A or A', &c., at the termination of its rearward stroke, actuates the rocker J or J', &c., to cause it to raise the contact B or B', &c. Consequently during the forward movement of the contact-piece A or A', &c., the corresponding contact-piece B or B', &c., is held out of contact with it, and does not affect the electric circuit. At the termination of its forward movement the contact-piece A or A', &c., actuates the rocker J or J', &c., to cause it to release the corresponding contact-piece B or B', &c., and allow the latter to fall upon the contact-piece A or A', &c., in contact with which it remains during the rearward movement of A or A', &c.

The forward ends of the keys may be marked with the letters or symbols which they are severally designed to transmit.

Persons having no skill in transmitting telegraphic messages can operate this transmitter.

Thus far I have only described springs as the means for effecting the rearward movements of the contact-pieces A A', &c. Obviously weights can be utilized for this purpose. I have shown an example of this.

L designates a weight attached to a rod, L', which is hung from a rock-shaft, L². A link, L³, connects the rod L' to an arm, L⁴, which extends through a slot in the platform C from the contact-piece to be operated. When the said contact-piece is moved forward, this weight will be raised, and when the contact-piece is released the weight will return it to its normal position.

Obviously many modifications of the details of this transmitter can be made without varying the result attained by it.

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

1. In a telegraphic transmitter, the combination of a sliding contact-piece and another contact-piece operating in conjunction therewith and movable toward and from the sliding contact-piece in a direction transverse to the line of movement of said sliding contact-piece, and means for imparting motion to said contact-pieces for the purpose of transmitting the telegraphic signal, letter, or symbol, substantially as herein described.

2. In a telegraphic transmitter, the combination of a sliding contact-piece, a rocking contact-piece arranged to operate in conjunction therewith, and means for causing the
5 rocking contact-piece to rock into contact with the sliding contact-piece when the sliding contact-piece moves in one direction, and to rise out of contact with the sliding contact-piece when the latter moves in the reverse direction, substantially as herein described.
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3. In a telegraphic transmitter, the combination

of the sliding contact-piece A, the rocking contact-piece B, the rocker J, the spring S, and means for imparting movement to the sliding contact-piece A, and through it to the
15 rocker J and contact-piece B, substantially as specified.

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