

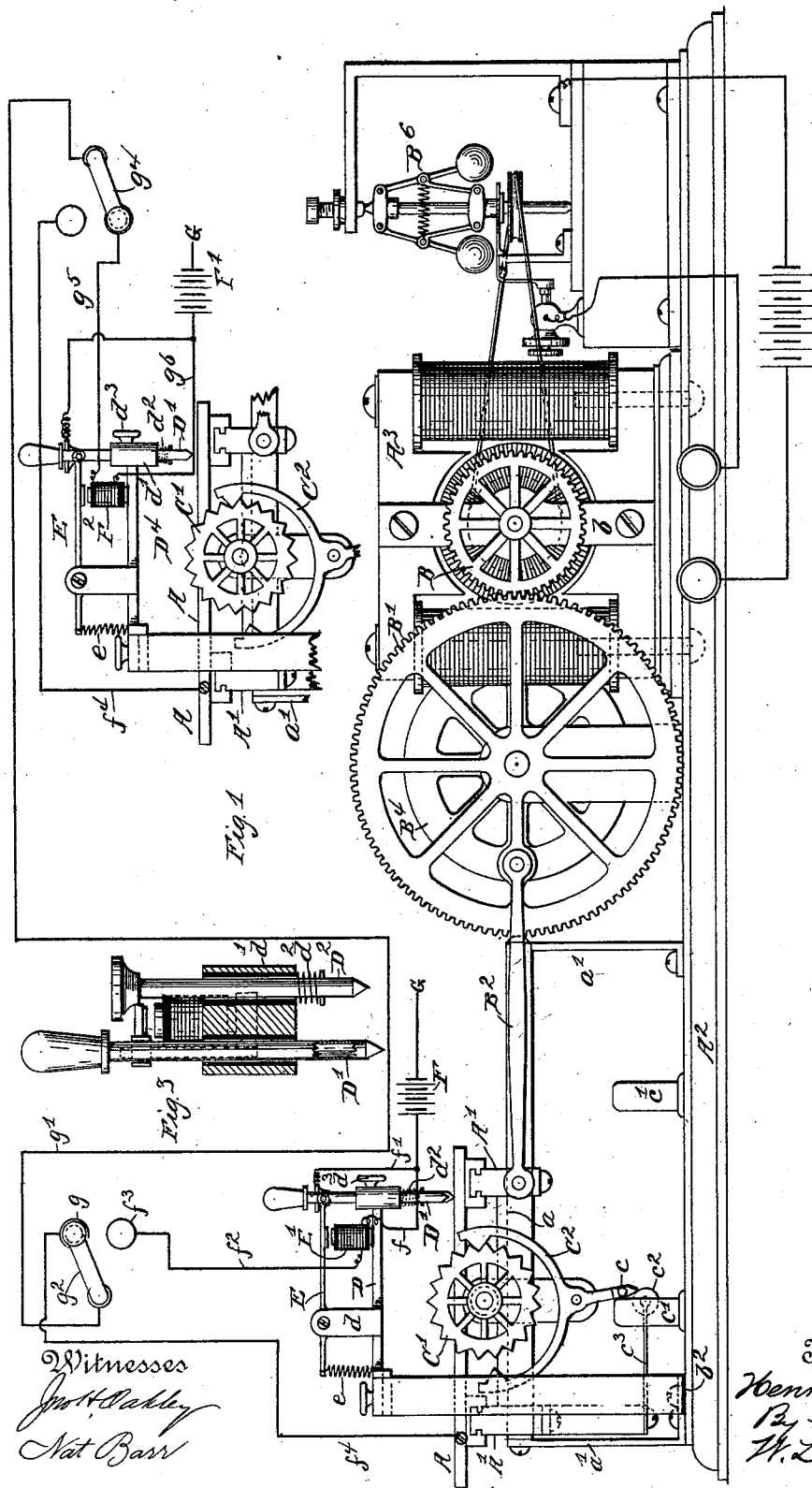
(No Model.)

2 Sheets—Sheet 1.

H. C. BRIDGER.
DEVICE FOR REPRODUCING CHARACTERS.

No. 478,152.

Patented July 5, 1892.



Witnesses
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Nat Barr

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By his Atty
W. L. Remmon

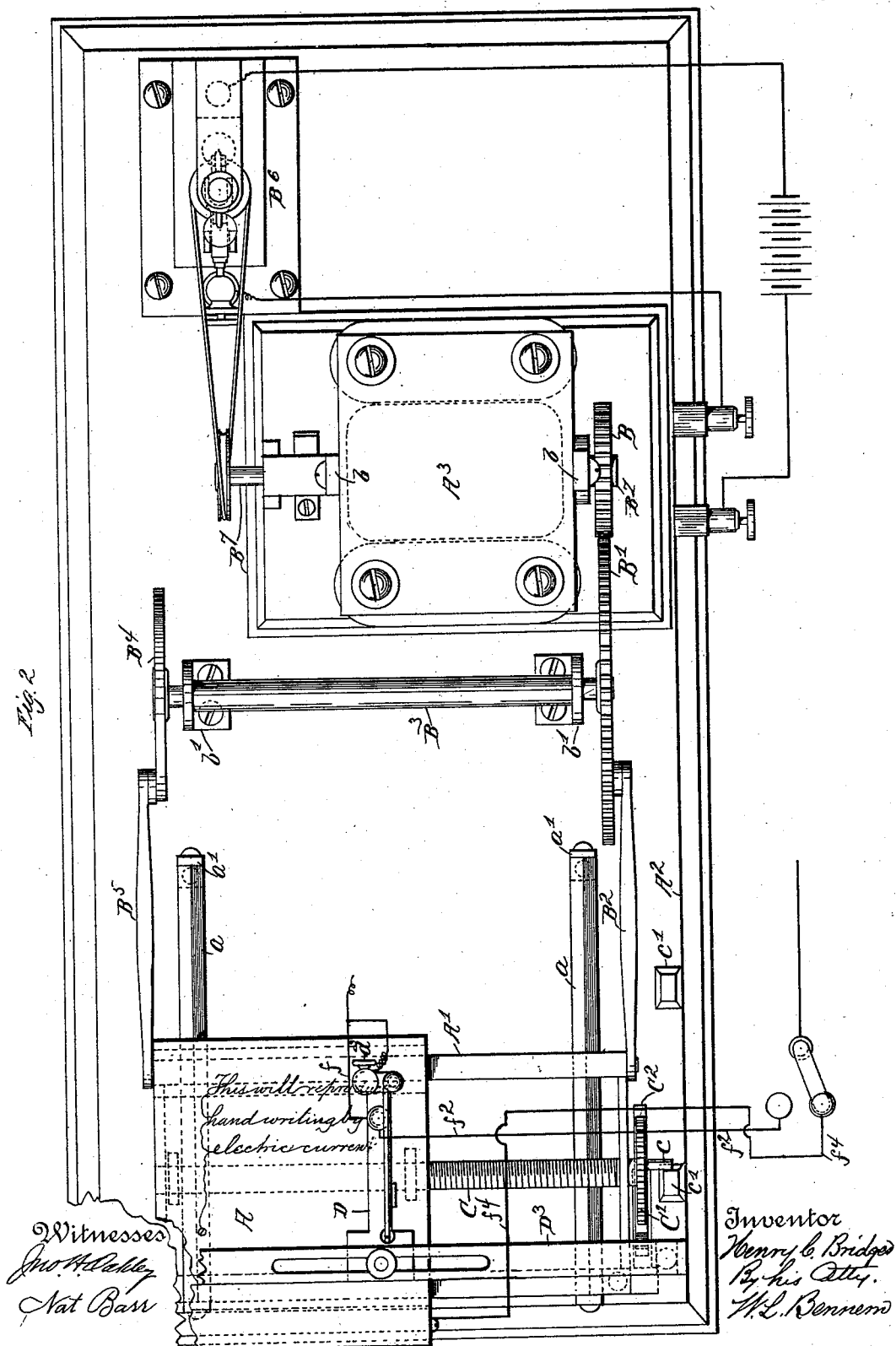
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UNITED STATES PATENT OFFICE.

HENRY C. BRIDGER, OF WOOD RIDGE, NEW JERSEY, ASSIGNOR TO THE
UNITED STATES AUTOGRAPH TELEGRAPH COMPANY, OF NEW YORK, N. Y.

DEVICE FOR REPRODUCING CHARACTERS.

SPECIFICATION forming part of Letters Patent No. 478,152, dated July 5, 1892.

Application filed August 10, 1891. Serial No. 402,218. (No model.)

To all whom it may concern:

Be it known that I, HENRY C. BRIDGER, a subject of the Queen of Great Britain, and now residing at Wood Ridge, in the county of Bergen and State of New Jersey, one of the United States of America, have invented a certain new and useful Improvement in Devices for Reproducing Characters, Writing, &c., of which the following is a specification.

This invention relates to devices for reproducing messages, drawings, and the like at a distant point; and it consists of the construction and novel combination of parts, as hereinafter set forth.

In the accompanying drawings, Figure 1 is a side elevation of a device embodying my improvement. Fig. 2 is a plan view thereof. Fig. 3 is a detail.

Referring by letter to the drawings, A designates a table or platform having a compound movement—that is, the table or platform has a to-and-fro movement and a lateral movement imparted to it. The table or platform A is mounted and is moved laterally upon a carriage A', which is movable on ways *a*, supported on posts *a'*, extending upward from a bed-plate A².

As a means to impart a to-and-fro movement of the table or platform A, I employ an electromotor A³, which may receive its current from any desired source. The electromotor A³ has a gear-wheel B on its shaft meshing with a gear-wheel B', having its shaft B³ mounted on standards erected upon the bed-plate A². A pitman B² extends from the wheel B' and is engaged with the carriage A'. Obviously by this construction the carriage A' will be moved back and forth on the ways *a* and carry the table A. The end of the shaft B³ opposite to the wheel B' may have a balance-wheel B⁴ on it, connected by a pitman B⁵ with the carriage A' to maintain a uniform speed. The electromotor is provided with a governor B⁶. It is to be understood that I do not confine myself to an electromotor, as a steam or any other motive power may be employed.

A lateral movement is given to the table A by means of a screw C, rotating in bearings 50 carried by the carriage A' and engaging in tapped holes in the framing of the table A.

On the outer end of the screw C is mounted an escapement or similar wheel C', with which an escapement-lever C² engages alternately on opposite sides to rotate the screw one step 55 at a time. The lever C² is fulcrumed to a bracket extending downward from the carriage A', and has a pin *c* extending from its lower portion into the path of tappets *c'*, erected upon the bed-plate. As the table is 60 moved to and fro the lever C², by coming in contact with the tappets *c'*, will operate to rotate the screw to impart a lateral movement to the table. To hold one of the ends of the lever C² in contact with the wheel C' until the 65 lever is operated by contacting with the opposite tappet, I employ a brake, here shown as a friction-wheel *c*², with which the lower end of the lever engages. This wheel *c*² is supported by a spring-arm C³, extending from 70 a depending portion of the carriage A'.

D is a supporting-arm for receiving pen D' and a transmitting-point or circuit-closer D². The arm D is longitudinally adjustable over the table A on the bar D³, which is secured 75 to posts extending upward from the bed-plate A². The posts are preferably insulated from the bed-plate by insulating material *b*². As a means for adjusting the arm D on the bar D³ and securing it rigidly as adjusted I have 80 shown the bar D³ as longitudinally slotted, and a set-screw is extended through the slot into a tapped hole in the arm.

In Fig. 1 I show an instrument D⁴, supposed to be at a distant point or station and acting 85 as a receiving-instrument. It is to be understood that the instruments are alike in construction, and each may serve as a transmitter or a receiver by changing the electrical circuit, as hereinafter described, and bringing 90 the pen or the transmitting-point into play.

The receiving-pen D' is tubular, so that ink may be placed therein and find an exit through a small perforation in the point. The pin D' is movable or reciprocates vertically in a socket in the end of the arm D and is pivotally secured to an armature E, which 95 coacts with an electro-magnet E', mounted on the arm D.

The armature E is fulcrumed to a post *d*, 100 extending from the arm D, and a spring *e* secured at one end to the armature and at the

other end to the arm D, serves to return the armature and pen to an upward position when the electro-magnet is de-energized.

The transmitting-point of circuit-closer D² consists of any suitable metal and is movable vertically in a socket in the end of the arm D adjacent to the pen D'. The instrument D² preferably has a hard sharp point and the socket is provided with a bushing d' of insulating material. The circuit-closer D² may be held in yielding contact with paper on the table A by means of a spring d², surrounding the circuit-closer between a pin or shoulder thereon and the lower portion of the arm D, as shown. When the instrument D² is not in use, it may be held out of contact with the paper by means of a thumb-screw d³, engaging in a tapped hole in the wall of the socket and impinging against the instrument.

I will now describe the electrical connections. F F' designate batteries, each having a ground-wire G. From the battery F a wire f extends to the electro-magnet E', and a wire f' also extends from the battery F to the transmitting-point or circuit-closer D². A wire f² extends from the electro-magnet E' to a switch-point f³. A wire f⁴ extends from the metal table A to a switch-point g, and g' is a line-wire extending to the distant receiver, and, as shown, the circuit is closed between the wires f⁴ g' by the switch g².

Referring to Fig. 2, a message will be seen in place upon the table A. This message is written on paper with metallic ink, and the letters and words of each line are connected to a side line which contacts with the table A or with the wire f⁴.

In operation the transmitting-point or circuit-closer will be placed in contact with the paper, and as the table is reciprocated the point will contact with the metallic ink and close the electrical circuit to operate the receiving-pen on the device D⁴, the current being from the battery F to point D², thence through the message and table to wire f⁴,

through switch g², line-wire g', switch g⁴, wire g⁵, electro-magnet F², wire g⁶, battery F', and back to battery F through the ground. Of course by changing the switches g² g⁴ the operations of the machines may be reversed.

Having described my invention, what I claim is—

1. The combination of an electric circuit, a movable table upon which a message is supported, a message of metallic ink on an insulating material, and a transmitting-point co-acting with the message to close the circuit, the said table having a continuous to-and-fro motion and a step-by-step lateral motion, substantially as specified.

2. The combination, with the table having a to-and-fro and a lateral movement and independent mechanism, substantially such as described, for causing each of said movements, of a pen-supporting arm adjustably mounted over said table, substantially as specified.

3. The combination, with an electric circuit, of a pen and table having a to-and-fro and a lateral movement beneath the pen and independent mechanism, substantially such as described, for causing each of said movements, substantially as specified.

4. The combination, with the pen, of a table, a motor for imparting a to-and-fro movement to said table, and a screw for imparting a lateral movement to said table, substantially as specified.

5. In a device of the character designated, the combination of the pen, the table, a carriage upon which the table is movable laterally, a way upon which the carriage is movable to carry the table to and fro, a motor for causing such movement, and a screw operated at the ends of the to-and-fro motion to impart a lateral movement to the table, substantially as specified.

HENRY C. BRIDGER.

Witnesses:

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