2 Sheets—Sheet 1.

C. E. SCRIBNER.

TELEGRAPHIC REPEATER.

No. 181,600. Patented Aug. 29, 1876.

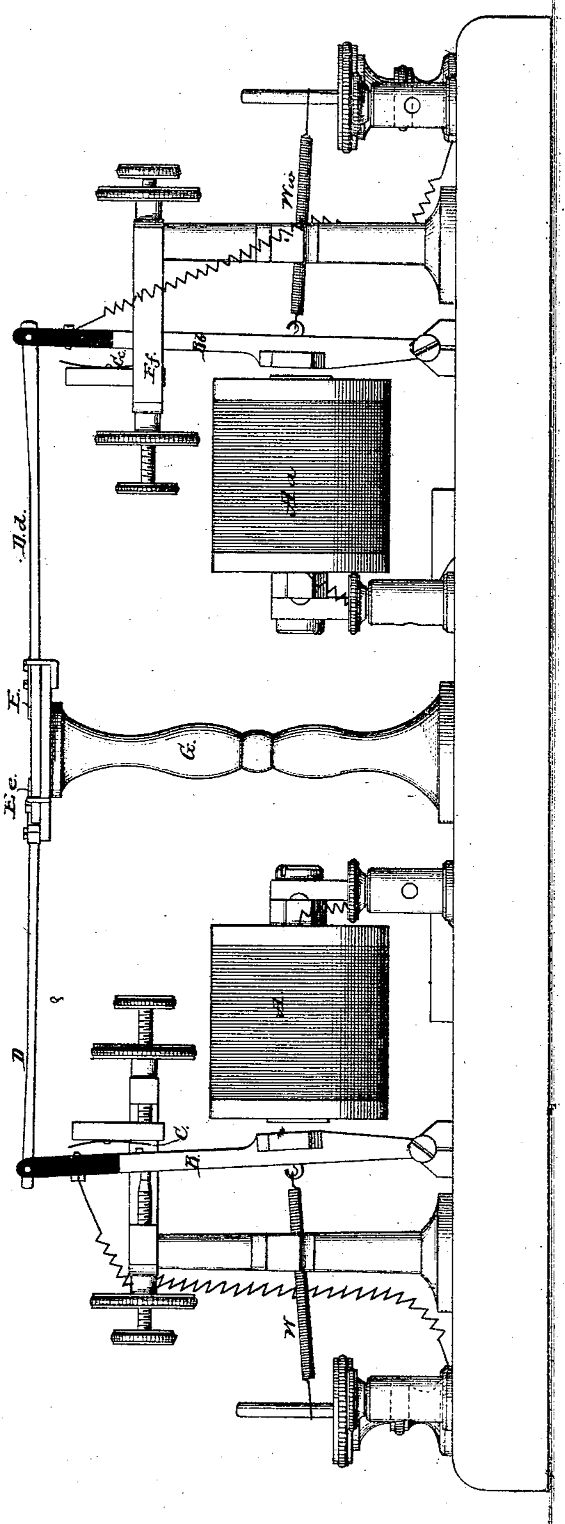

Fig. 1.

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2 Sheets—Sheet 2.

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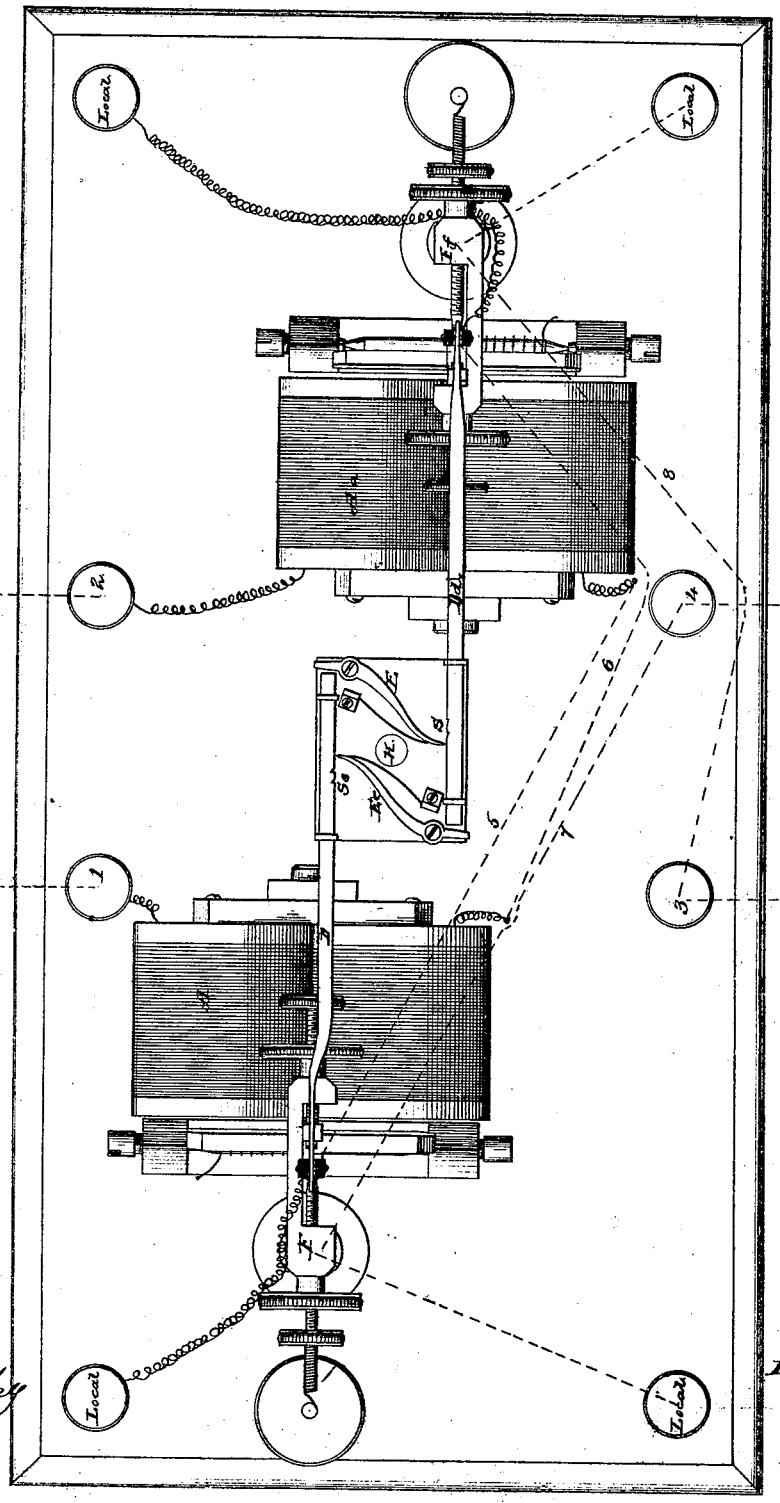

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W. K. Clendenin
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Inventor:
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UNITED STATES PATENT OFFICE.

CHARLES E. SCRIBNER, OF TOLEDO, OHIO, ASSIGNOR OF ONE-HALF HIS RIGHT TO THOMAS E. BOND, OF SAME PLACE.

IMPROVEMENT IN TELEGRAPHIC REPEATERS.

Specification forming part of Letters Patent No. **181,600**, dated August 29, 1876; application filed August 9, 1876.

To all whom it may concern:

Be it known that I, CHARLES E. SCRIBNER, of Toledo, in the county of Lucas and State of Ohio, have invented certain new and useful Improvements in Telegraphic Repeaters; and hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings.

The object of my invention is, by the use of an automatic mechanical device and arrangement of circuits, to repeat signals from one telegraph-line to another, without an electrical connection between the two, and without the use of auxiliary local battery or batteries and sounders. This I accomplish by a combination of two relays; two rods attached to insulated prolongations of armature-levers of said relays, running parallel to each other, and working in guides on a plate situated between the two relays; two catches working laterally on the plates between the two rods, and governed by the free ends of said rods. A current of electricity flowing over a wire, and through either relay of the repeater, flows also through the armature-lever and sounding-posts of the opposite relay or points attached. The point of either armature-lever rests on a spring on an adjustment-block. In operation the spring follows the points for a short distance. Now, if the key in either line be opened, the armature-lever of the relay in that line will fall back. The small spring following will prevent its breaking circuit until it has passed through a short space. The rod attached to the moving lever will be drawn back with the lever, and its catch will fall into a notch in the opposite rod, and prevent that opposite rod from moving, and this will occur before the point of the moving armature-lever leaves the spring. This movement occurs at every opening of either lever.

I may, under certain circumstances, use a local battery for the purpose of closing one armature-lever should both be thrown open at the same instant. This needs no further description here, as I propose to make the same the basis of a future application for Letters Patent.

The device or machine is illustrated in detail in the accompanying drawings—vertical, Figure 1, and plan view, Fig. 2.

In Fig. 1, A is relay-coil in line running north and south. A *a* is relay-coil in line running east and west. B is armature-lever belonging to coil A. B *b* is armature-lever belonging to coil A *a*. C is light spring attached to adjustment-block belonging to coil A. C *c* is light spring attached to adjustment-block belonging to coil A *a*. D is rod attached to insulated prolongation of lever B. D *d* is rod attached to insulated prolongations of lever B *b*. W is adjustment-spring attached to lever B. W *w* is adjustment-spring attached to lever B *b*. G is part holding plates.

In Fig. 2, E is catch governed by rod D. E *e* is catch governed by rod D *d*. S is notch in rod D *d*. S *s* is notch in rod D. H is plate holding rods and catches. F and F *f* are sounding-posts. 1, 2, 3, and 4 are binding-posts. 5 6 7 8 are electrical connections.

Suppose currents of different lines to be flowing through opposite relay-coils A and A *a*; now, if the currents flowing through A be broken, armature-lever B will be drawn back by spring W, the spring C following far enough to allow catch E, Fig. 2, to fall into notch S in rod D *d*. When lever B, Fig. 1, is drawn back by spring W, rod D is drawn with it, releasing catch E, and allowing it to fall into notch S, preventing rod D *d* being drawn back by armature-lever B *b*, which, in its turn, would be drawn back by spring W *w* on the breaking of circuit at point C. If the current passing through coil A *a* be broken, this movement will be separated from the opposite side.

Suppose a key on line north, Fig. 2, be closed, the current will be completed through binding-posts 1; thence through coil A; thence by electrical connection 6 to base of armature B *b*, Fig. 1; thence through points C *c* and sounding-posts F *f*, the points C *c* being held in contact as lever B *b* is locked at S; thence through connection 8, Fig. 2, to binding-posts 3, and out by line south. This current being established, as above described, armature-le-

ver B, Fig. 1, is attracted, closing circuit at point C before catch E, Fig. 2, releases rod D *d* at notch S.

If a key on line east be closed this movement will be repeated from the opposite side, the current passing through binding-post 2; thence through coil A *a;* thence through connection 5 to base of lever B, Fig. 1; thence through lever B and points C to sounding-post F, Fig. 2; thence through connection 7 to binding-post 4, and out by line west.

I claim as my invention—

1. The combination, in a repeater, of two relays and their armature-levers, so arranged that the armature-lever of either controls the circuit through the other relay.

2. The combination, with two relays and their levers, of a mechanical device, substantially as described, intermediate of the levers, and arranged to be operated by either, so that the movement of one lever causes the mechanical device to lock the other lever in position for repeating, substantially as and for the purposes set forth.

3. The mechanical device situated between the two relays, consisting of a post, platen-bed, two rods, two catches, and two springs.

4. Combination of a mechanical locking device and a spring-contact, operated by an armature-lever, both arranged in such relation that upon the movement of one of the levers to the contact the circuit will be closed through the other magnet, to hold its armature before the mechanical locking device can release it.

5. Combination of a mechanical locking device and a spring-contact, operated by an armature-lever, both arranged in such relation that upon the movement of one of the levers from the contact the mechanical locking device is brought into operation to lock the other lever before the electrical circuit through its magnet is broken.

CHARLES E. SCRIBNER.

Witnesses:
WALTER H. SMITH,
JAMES K. REDINGTON.