3 Sheets—Sheet 1.

R. J. SHEEHY.

DIAL TELEGRAPHS.

No. 189,272. Patented April 3, 1877.

Fig. 1.

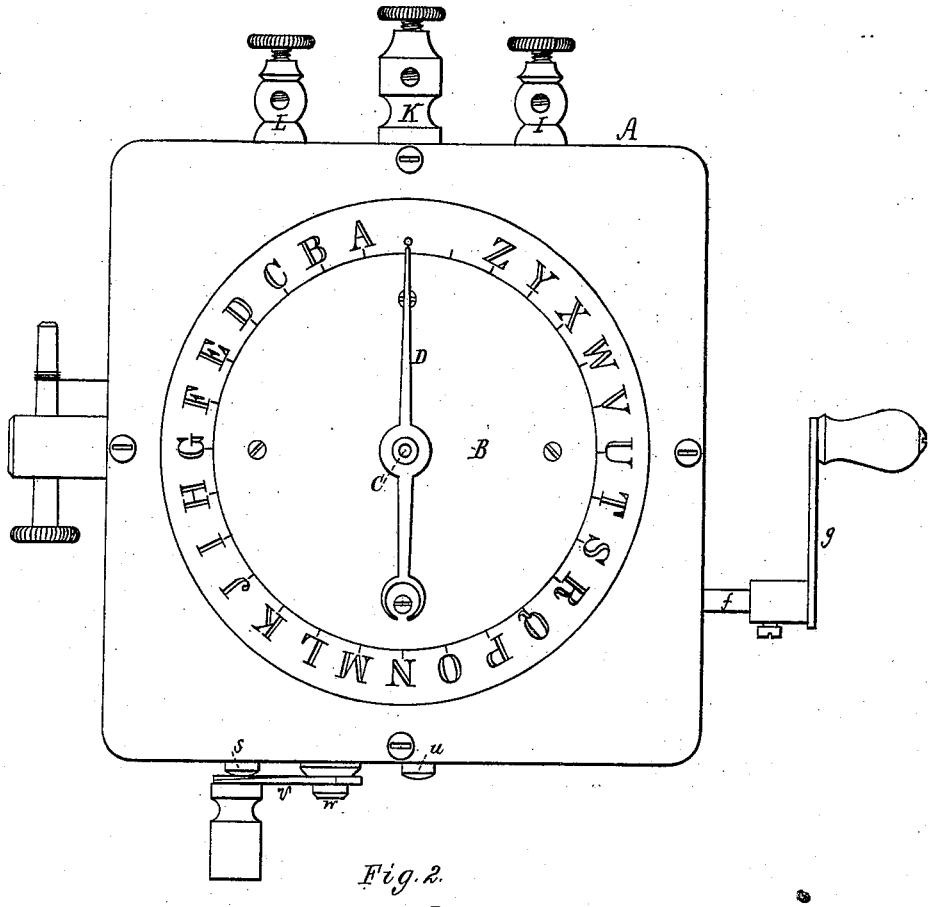
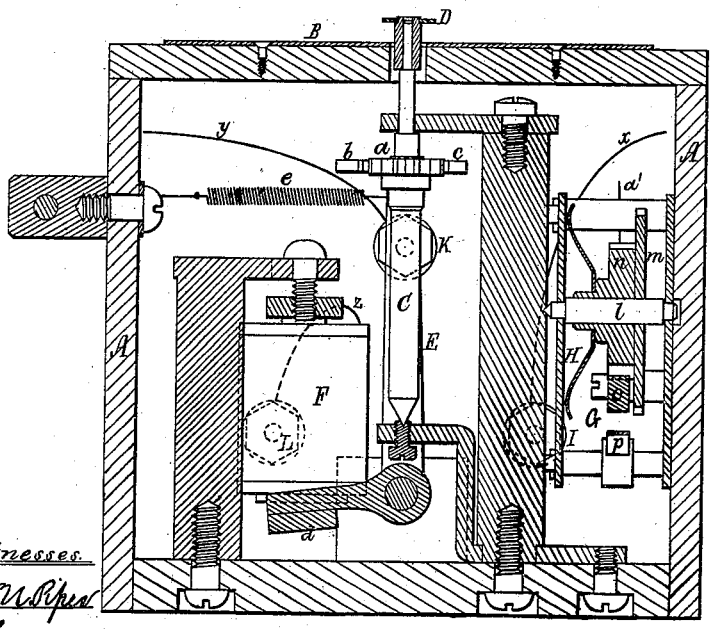


Fig. 2.



Witnesses.
S. W. Pipes
L. W. Miller.

Robert J. Sheehy
by his attorney.
R. H. Eddy.

3 Sheets—Sheet 2.

R. J. SHEEHY.

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Fig. 4.

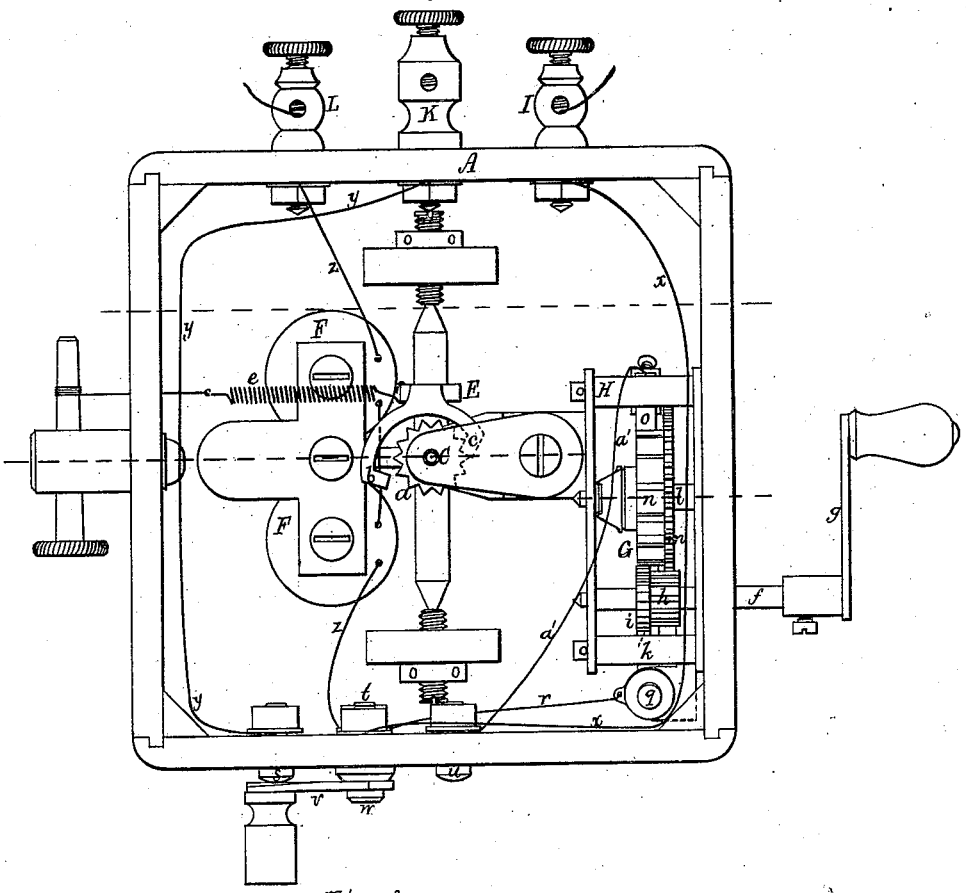


Fig. 3.

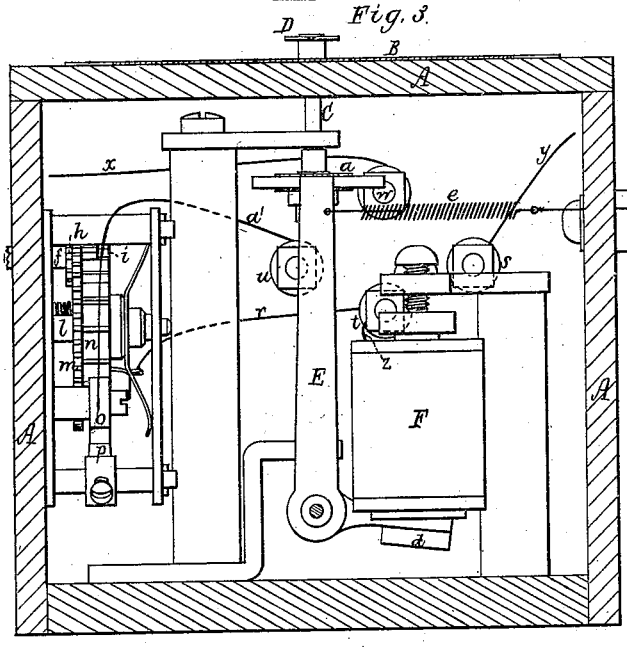
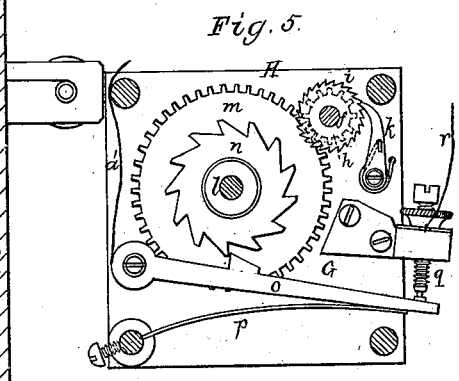


Fig. 5.



Witnesses
S. N. Piper
L. M. Moleod.

Robert J. Sheehy
by his attorney.
R. H. Eddy

3 Sheets—Sheet 3.

R. J. SHEEHY.

DIAL TELEGRAPHS.

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Fig. 6.

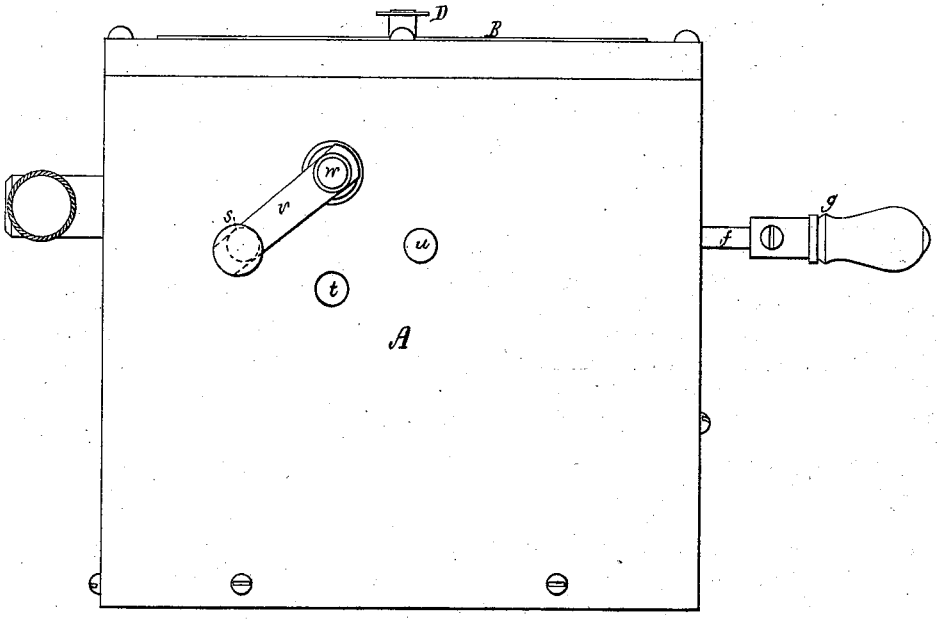
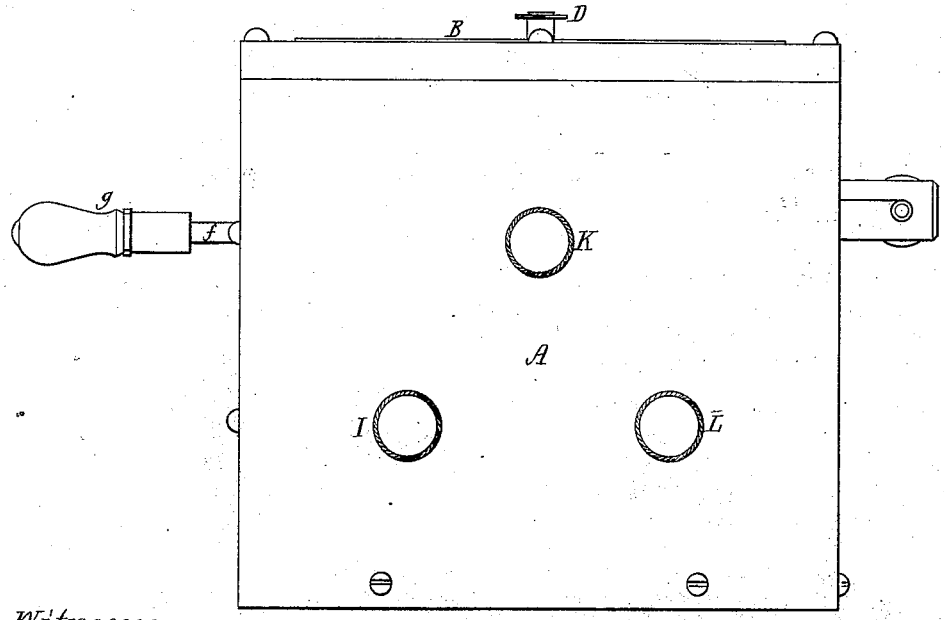


Fig. 7.



Witnesses
S. N. Pipes.
L. N. Miller.

Robert J. Sheehy
by his attorney.
R. K. Eddy.

UNITED STATES PATENT OFFICE.

ROBERT J. SHEEHY, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN DIAL-TELEGRAPHS.

Specification forming part of Letters Patent No. **189,272**, dated April 3, 1877; application filed January 23, 1877.

To all whom it may concern:

Be it known that I, ROBERT J. SHEEHY, of Boston, of the county of Suffolk and State of Massachusetts, have invented a new and useful Instrument or Apparatus for Telegraphic Purposes; and do hereby declare the same to be described in the following specification and represented in the accompanying drawings, of which—

Figure 1 is a top view, and Figs. 2 and 3 transverse sections, of it, and with its dial in place. Fig. 4 is a top view of it as it appears with the dial and top of the case removed from the rest of the apparatus.

The invention consists, first, in the combination of a circuit-breaker, substantially as hereinafter described, with a dial, B, hand D, electro-magnet F, armature *d*, and escapement *a b c*, applied and arranged essentially as shown and hereinafter described, such circuit-breaker consisting of the arbor *f*, pinion *h*, notched wheel *i*, retaining-pawl *k*, gear *m*, brake-wheel *n*, brake-lever *o*, and insulated stud *q*, as shown and explained; second, in the combination of a switch, *v*, connection-knobs *s t u*, posts I K L, and wires *r x y a'* with a case, A, dial B, electro-magnet F, lever E, armature *d*, escapement *a b c*, dial-hand D, arbor C, and the circuit-breaker G, all being essentially as hereinafter described, and as represented in the accompanying drawings.

By means of the apparatus and another like it, arranged at the extremes of a telegraphic line, two persons may readily communicate with each other telegraphically with great facility.

In the drawings, A denotes the box or case of the instrument, which may be of wood or some other good non-conductor of electricity. On the top of the box is a dial, B, having the letters of the alphabet arranged on it in manner as shown.

Extending up through the center of the dial is an arbor, C, provided with a hand or index-pointer, D, the latter being arranged above the dial.

On the said arbor is an escapement-wheel, *a*, having fourteen teeth, it being to operate with pallets *b c*, projecting from a lever, E, whose lower arm carries the armature *d* to an electro-magnet, F, arranged as represented. To the lever E a spring, *e*, is fixed for retracting it. On the circuit of the magnet being closed the armature will be attracted, and will move the lever in one direction, its movement in the opposite direction following on the circuit being broken. These movements cause the pallets of the escapement to actuate the escapement-wheel in a manner to intermittently revolve it, so as to cause the hand to pass around from letter to letter on the dial.

The circuit-breaker shown at G may thus be described:

A suitable frame, H, supports the operative parts of such circuit-breaker, the first of which is an arbor, *f*, provided with a crank, *g*, a toothed pinion, *h*, and a ratchet-wheel, *i*. Fig. 5 is a vertical section of the circuit-breaker. A retaining-pawl, *k*, applied to the said ratchet and frame, serves to prevent back-turning of the arbor by the crank.

On another arbor, *l*, arranged as shown, is a spur-gear, *m*, having forty-eight teeth. This gear engages with the pinion *h*, which has twelve teeth. Aside of the gear *m*, and concentric with its arbor, is a brake-wheel, *n*, having fourteen teeth. A brake-lever, *o*, provided or not with a spring, *p*, to force it up to the teeth of the brake-wheel, is arranged with the latter, and an insulated stud, *q*, from which a wire, *r*, extends to the middle one of three connection-knobs, *s t u*, fixed to the case, and arranged, as shown, to operate with a switch, *v*. From the pivot *w* of the switch a wire, *x*, extends to one of three connection-posts, I K L, extended from the case, as shown, particularly in Figs. 6 and 7, which are opposite side views of the said case. From the middle or upper post K a wire, *y*, extends to the knob *s*. The knob *u* is connected with the brake-lever by a wire, *a'*.

One wire of an electric battery is to be connected with the post L, the other wire of the battery being connected with the ground.

The wire of the electro-magnet (shown at *z*) is connected with the knob *t*, and also with the post L. The line-wire is to be connected with the post I.

The post K is for the purpose of combining with the apparatus an electric bell and mechanism for sounding it, all of which will be understood by electricians. Such bell is to

enable a person at the other extreme of the line to give notice of his desire to communicate. At this time the switch should be on the knob *s*. In receiving a message the switch is to be on the knob *t;* but while sending one, such switch should be on the knob *u*.

In operating with the dial telegraphic apparatus described the operator is to turn the crank, whereby there will be caused an alternate closing and opening of the circuit, and, as a consequence, an intermittent turning of the hand about the dial.

When the hand may have reached the required letter the operator is to stop the crank. As the hand of the two instruments will be put in motion synchronously, they will stop at analogous letters, and thus communication may be had, as will be readily understood by telegraphers or persons skilled in the art of telegraphing.

In the above-described telegraphic apparatus, I claim as follows:

1. The combination of a circuit-breaker, G, substantially as described, with the dial B, its hand D, electro-magnet F, lever E, armature *d*, and escapement *a b c*, applied and arranged essentially as set forth, such circuit-breaker consisting of the arbor *f*, pinion *h*, ratchet-wheel *i*, retaining-pawl *k*, gear *m*, brake-wheel *n*, brake-lever *o*, and insulated stud *q*, all being arranged and applied substantially and to operate as set forth.

2. The combination of the switch *v*, connection-knobs *s t u*, posts I K L, and wires *r x y a'* with the case A, dial B, electro-magnet F, lever E, armature *d*, escapement *a b c*, dial-hand D, arbor C, and the circuit-breaker G, all being arranged, applied, and to operate substantially as set forth.

ROBERT J. SHEEHY.

Witnesses:
R. H. EDDY,
S. N. PIPER.