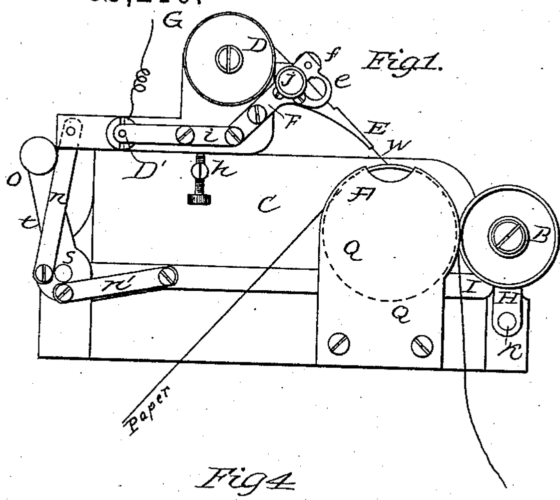
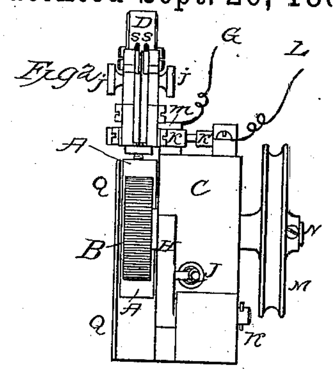
(No Model.)

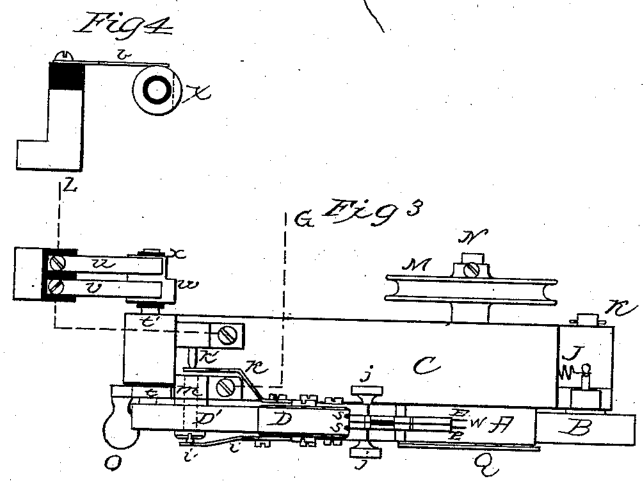
F. ANDERSON.

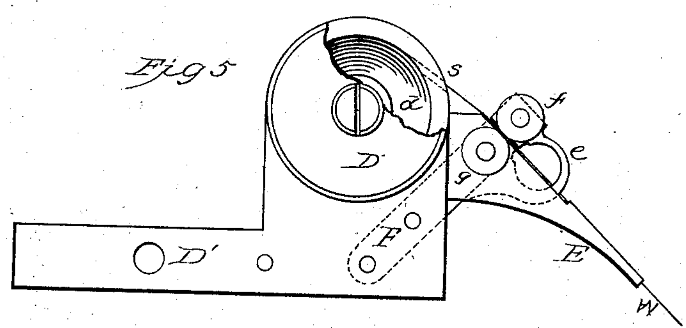
CHEMICAL TELEGRAPH RECORDER.

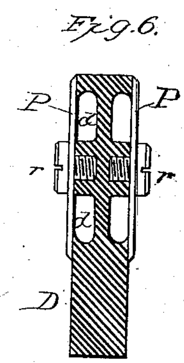
No. 265,210. Patented Sept. 26, 1882.











WITNESSES:

Walter Donaldson

F. L. Middleton

INVENTOR

Frank Anderson

BY Ellis Spear

ATTORNEY

UNITED STATES PATENT OFFICE.

FRANK ANDERSON, OF PEEKSKILL, NEW YORK, ASSIGNOR TO THE AMERICAN RAPID TELEGRAPH COMPANY, OF CONNECTICUT.

CHEMICAL TELEGRAPH-RECORDER.

SPECIFICATION forming part of Letters Patent No. 265,210, dated September 26, 1882.

Application filed January 6, 1882. (No model.)

To all whom it may concern:

Be it known that I, FRANK ANDERSON, of Peekskill, in the county of Westchester and State of New York, have invented a new and useful Improvement in Chemical Telegraph-Recorders; and I do hereby declare that the following is a full, clear, and exact description of the same.

My invention relates to recording-instruments for chemical telegraphs.

The object of the invention is to facilitate the manipulation of the instrument, the adjustment of the pen and the switches.

The invention consists of improved details, hereinafter fully set forth, relating to the pen-holder, feed devices for the pen, and to the carrying-wheel, pressure-roller, pen-holder, and switch, with special connecting devices.

In the accompanying drawings, Figure 1 represents a side elevation; Fig. 2, an end elevation, and Fig. 3 a plan of an instrument embodying my invention. Fig. 4 shows the switch; Fig. 5, the pen-holder, and Fig. 6 a sectional view of the latter, taken vertically through the center.

In the instruments heretofore used of the class above specified the rollers which carry the paper have been made with flanges forming a part of the wheel itself, on each side, to guide the paper fillet and hold it in place. These flanged rollers are objectionable on account of the tendency of the wet paper which is used to climb up the flange, and thus get out of place. To obviate this objection I make the carrying-wheel plain without flanges, as shown at A in Figs. 1 and 3, and cause it to revolve between fixed guide-plates, which prevent the paper from riding up from the periphery of the wheel and getting out of place. The guide on one side is formed by the surface of the frame C, against which the wheel A is placed, and on the other by a rubber disk, Q, of a diameter a little greater than that of the wheel, as shown in Figs. 1 and 2. The disk is fixed to the frame, and the wheel A revolves freely between it and the side of the frame, and as only the wheel moves the fillet does not tend to climb up and get out of place. This carrying-wheel is preferably covered with platinum, and if used for single-line recording is connected with the ground, but not if used for double-line recording, as in latter case ground-connections are made from one of the pens. This wheel is driven by pulley M on shaft N.

B is a pressure-roller, mounted on lever H, which is pivoted at *k*. A spring, J, Figs. 2 and 3, holds in contact the wheels B and A, between which the paper passes.

Where the record is produced by the decomposition of the pen the latter wears away quite fast, and requires frequent adjustment. The ordinary methods of holding these pens by clamp or set-screw render this adjustment of the pen inconvenient, and in the second part of my invention I have provided means for avoiding this inconvenience. They are represented in their proper position and connections in Fig. 1, but on a larger scale and more clearly in Figs. 5 and 6, detached from the other parts of the instrument.

A chambered standard, D, is pivoted on the frame by means of a bolt, D′, which passes into the frame, or preferably into a piece, *m*, fixed on the frame, Figs. 2 and 3. This chambered standard forms the holder for the coil of pen-wire, and also supports the clamping-wheels. It is so pivoted that depression of the rear end of the horizontal part will raise the pen away from the wheel A, so as to admit the paper readily. The upper part of the standard D is chambered, as shown at *d* in Figs. 5 and 6. The chamber is annular, made in the side or sides of the standard, and to the central boss or hub is fixed by screws *r* a plate, P, by means of which the coil of wire is admitted and securely retained in place.

It will be understood that the wire which forms the pen is coiled and then placed in the cavity about the central boss or hub. It is drawn out of the holder at a small aperture, *s*, and thence passes between rollers *f* and *g*. These rollers are mounted in an arm, F, secured to the standard D, which is of insulating material, and supports also the projecting bracket E. In this is a channel for the pen or pens, conducting and supporting them into sufficient proximity to the wheel A. The extremity of the pen is shown at W, and the relation thereof to the wheel A is shown in Fig. 1, in which it will be clearly seen that the elevation of the standard by turning on its pivot D′ will remove the pen from the wheel. One of the rollers, between which the pen passes (preferably the lower) is corrugated or grooved longitudinally

on its periphery, and is provided on its projecting journal with a nut or wheel, *j*, by means of which it may be turned by the hand to feed forward the pen. The roller *f* is firmly pressed toward roller *g* by means of a spring, *e*, said roller *f* having slight movement on its bearings, so as to grip the pen or pens, which are easily and accurately adjusted by turning the roller *g*.

In a double-line recorder this device is duplicated, as shown in the drawings, one being insulated from the other. For single-line recording manifestly only one holder is required. The insulation is effected by making the piece D of hard rubber or other insulating material, the rollers *f* and *g* being supported by arm F, fixed thereon, as heretofore described. The piece *m*, to which the pivoting-bolt D′ is secured, Figs. 2 and 3, is fixed to the general frame, which is also made of insulating material. The piece *m* is connected to the ground, Fig. 3, and by means of the bolt and metal spring *i* with one of the pens. The other pen is connected through spring *k*, pin *k*′, and connections with the line, as shown in Fig. 3. If only one pen is used, it is connected with the line and the wheel A with the ground, or vice versa.

The combination of devices for raising the pen or pens from the wheel A and separating wheels A and B is shown in Fig. 1. The simultaneously-operating switch is shown in connection with the parts already specified in Fig. 3.

O is a handle or crank on lever *t*, Fig. 1, mounted on a shaft, *t*′, (having its bearings in frame of the instrument,) which, by being moved downward, throws the pens up from wheel A and separates wheel B from A, so as to allow adjustment of the paper. The latter movement is accomplished by means of a bar, I, sliding in a groove in frame C, one end abutting on lever H, the other end being connected by link *n*′ with crank *t*. The motion of the pen is effected by another link, *n*, which connects the crank with standard D. These connections are so made, as shown in Fig. 1, that a quarter-turn of crank will throw up the standard D on its pivot 7 and open the wheels A and B. The pivots of *n* and *n*′ on crank are so placed that when the latter is down the strain of both links is in a line with its center. Consequently the instrument will stay either open or closed. On the rear end of shaft *t*′ is a cylinder, *w*, of metal, insulated from shaft. On this cylinder rests two or more springs, *u v*, one of which is in circuit with line and the other with one of the pens through *k*′ *k*. Circuit between the two springs *u v* is completed by cylinder *w* when crank *t* is up or instrument closed; but when crank is down a notch, *x*, in *w* breaks the circuit (*u* then not touching the cylinder *w*) and disconnects line with instrument. Other springs and notches in *w* might be added, so as to throw in a key or sounder when instrument is out, if desired.

Having thus described my invention, what I claim is—

1. In a recording instrument, a carrying-wheel, a pivoted pen-holder, a pressure-roller mounted on a separate pivoted lever, a crank-shaft, and connecting-bars between said shaft and the pen-holder and pressure-roller, whereby the pen-holder is lifted and the lever of the pressure-roller moved by one operation of the hand, substantially as described.

2. The pivoted and chambered standard, in combination with a bracket having a channel for the pen, said standard being arranged in the described relation to the carrying-wheel of the recording-instrument and operating as set forth.

3. In combination with the standard and with devices for supporting and guiding the pen or pens, pressure-rollers mounted on said standard and provided with turning device fitted to the hand, substantially as described.

4. The carrying-wheel, a pivoted pen-holder, a separate pressure-roller on a pivoted lever, a crank-shaft, and bars connecting pen-holder and lever of pressure-roller, in combination with a switch connected to said crank-shaft, whereby all the parts are moved by one motion of the hand, as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

FRANK ANDERSON.

Witnesses:
RUFUS ANDERSON,
COLERIDGE A. HART.