

(No Model.)

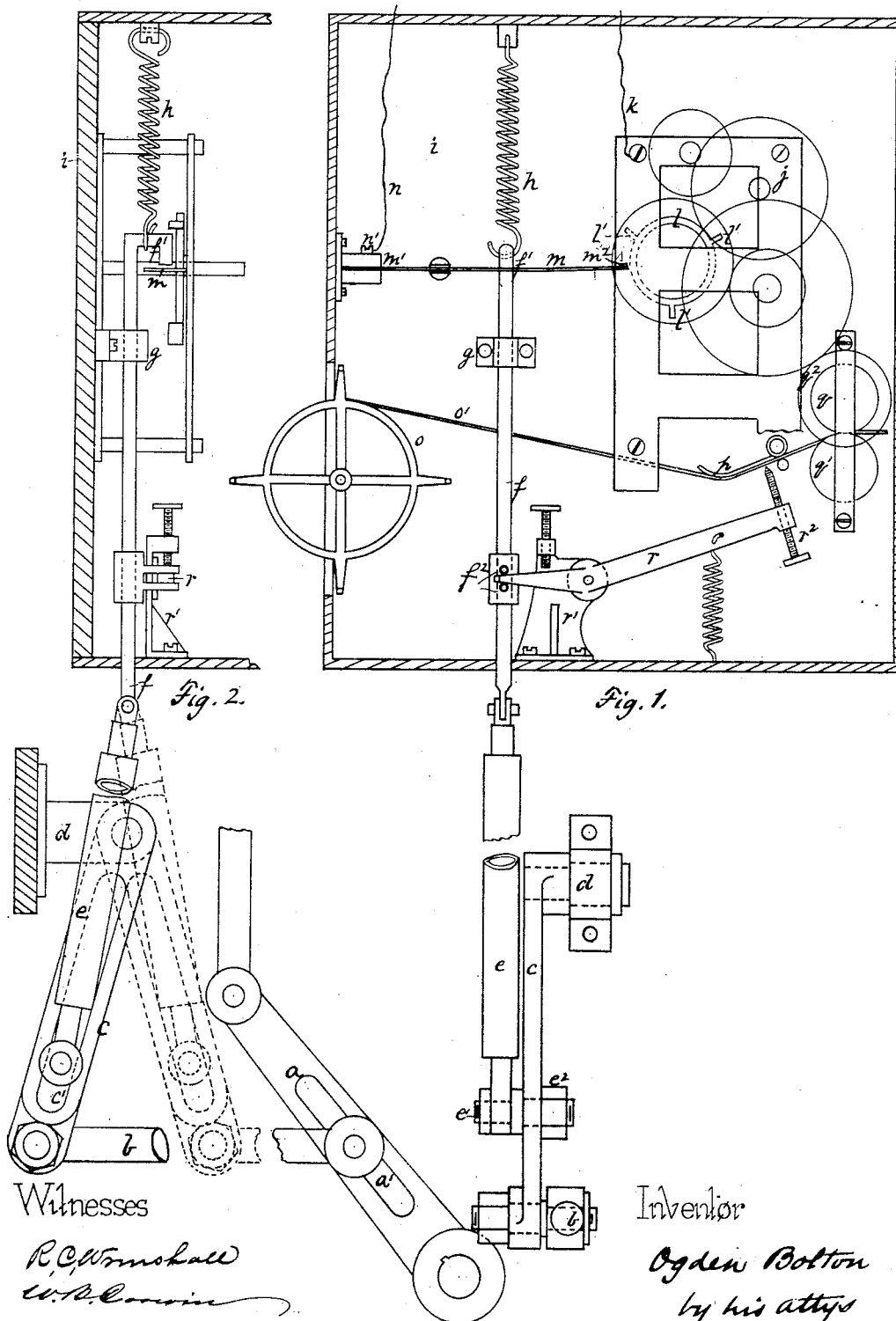
2 Sheets—Sheet 1.

O. BOLTON.

SIGNALING AND REGISTERING ATTACHMENT FOR REVERSING FURNACES.

No. 264,510.

Patented Sept. 19, 1882.



Witnesses

R. C. Wmshall
W. B. Corwin

Inventor

Ogden Bolton
by his attys
Bakewell & Kerr

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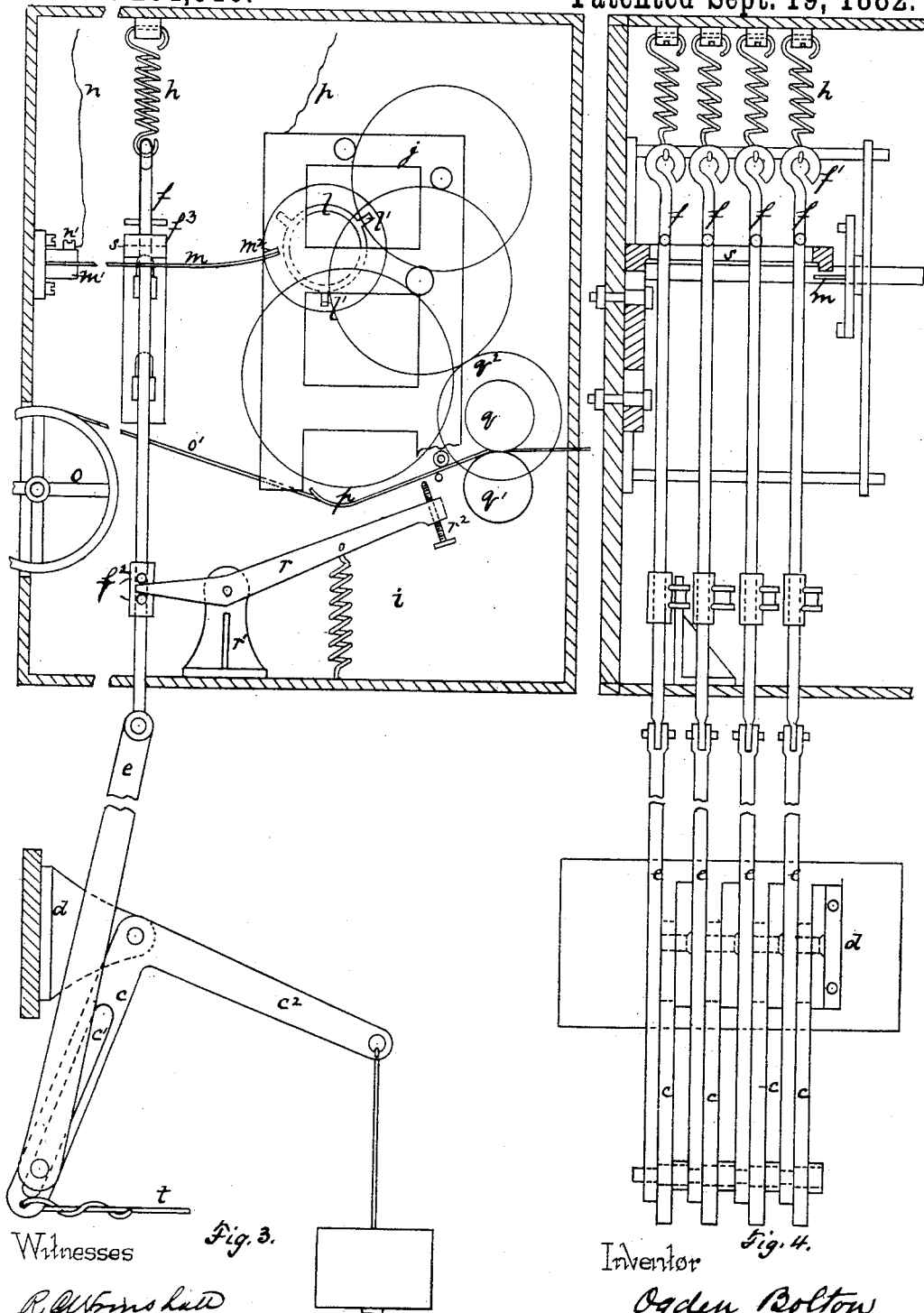
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Fig. 3.

R. A. Winslow Ltd
W. B. Corwin

Inventor

Fig. 4.

Ogden Bolton
by his attys
Bakewell & Kern

UNITED STATES PATENT OFFICE.

OGDEN BOLTON, OF CANTON, OHIO.

SIGNALING AND REGISTERING ATTACHMENT FOR REVERSING FURNACES.

SPECIFICATION forming part of Letters Patent No. 264,510, dated September 19, 1883.

Application filed June 5, 1882. (No model.)

To all whom it may concern:

Be it known that I, OGDEN BOLTON, of Canton, in the county of Stark and State of Ohio, have invented a new and useful Improvement in Signaling and Registering Attachments for Reversing Furnaces; and I do hereby declare the following to be a full, clear, and exact description thereof.

My invention consists in connecting to the reversing mechanism of a reversing furnace a clock-work, which, at the proper periods, closes the circuit of an electric bell to give the signal for reversing the furnace; and which also feeds a strip of paper or other suitable material in the path of a point attached to the reversing-lever, so that upon the movement of the lever in reversing the furnace the point shall puncture the paper, and so record the number and regularity of the reversals, and, as the rate of feed is definite, also the time of such reversals.

To enable others skilled in the art to make and use my invention, I will now describe it by reference to the accompanying drawings, in which—

Figure 1 is a front view of the attachment. Fig. 2 is an edge or side view, and Figs. 3 and 4 are similar views of the same as applied to several furnaces.

Like letters of reference indicate like parts in each.

The reversing-lever in Figs. 1 and 2 is indicated at *a*. From it a rod, *b*, extends and is pivoted to the lower end of a pivoted link, *c*. The rod *b* is pivotally attached to the lever *a*, the pin extending through a slot, *a'*, in the lever for the purpose of enabling it to be attached farther from or nearer to the axis of the lever, as it may be necessary to give the link *c* a longer or shorter throw. The link *c* is pivoted to a suitable lug or bearing, *d*, and is slotted, as at *e'*.

Fastened to the end of a rod, *e*, is a wrist or pin, *e'*, which extends through the slot *e'*, and is secured in the desired position therein by a nut, *e²*, on its outer end. At its other end the rod *e* is pivotally connected to a rod, *f*, which passes through a guide, *g*, and at its upper end has a hook, *f'*, by which it is attached to a spring, *h*. The purpose of the slot *e'* is to enable the wrist *e'* to be secured to the link at

any desired point. The rod *f* extends up into a case, *i*, in which also the guide *g* is placed. In this case is a clock-work, *j*, to the frame of which an electric wire, *k*, extending from a suitable battery, is connected. The wheels of the clock-work *j* and its frame are electrically connected; and upon one of the wheels *l* are projecting-pins *l'*.

At the side of the case *i*, in clamping-plates *m'*, I fasten a spring-strip, *m*, made preferably of hammered or hardened silver, which extends past the rod *f*, below the hook *f'*, and into the path of the pins *l'*. The clamping-block *m'* is insulated from the clock-work *j* by the wooden case *i*, or otherwise, and an electric wire, *n*, is fastened to it by a contact-screw, *n'*. The wire *n* leads to an electric bell of the usual construction.

In the case *i* is a reel or spool, *o*, upon which a strip of paper, *o'*, or similar material, is wound. The strip *o'* is led over a curved guide, *p*, and between two rolls, *q* *q'*. The rolls *q* *q'* are driven by the clock-work by means of suitable cogs or gearing, *q²*, and they draw the strip *o'* at uniform speed off of the spool *o* and over the guide *p*.

Pivoted to a standard, *r'*, on the case *i* is a lever, *r*, one arm of which extends between pins *f²* on the rod *f*, and the other arm extends in front of the guide *p* and is fitted with a pointed screw, *r²*. When the rod *f* is moved by the reversing-lever upon the reversal of the furnace it causes the lever *r* to turn on its standard *r'* and the point *r²* to strike and puncture the strip *o'*.

The operation of my improvement is as follows: The time for reversing the furnace is indicated by the ringing of the bell, when one of the pins *l'* comes in contact with the spring *m* and closes the electric circuit. Then when the attendant reverses the furnace the movement of the lever *a* swings the link *c* on its pivot *d*, drawing down the rod *f*. This causes the hook *f'* to come down on the spring *m* and draw it past the pin *l'*, thereby opening the circuit and stopping the ringing of the bell. When the link *c* swings past the center and assumes the position indicated by broken lines in Fig. 2, which it obtains when the furnace is reversed, the rod *f* rises and releases the spring *m*, which then resumes its normal position.

If it then comes in contact with the rear side of the pin l' , it does not make electrical connection therewith, because it is faced at m^2 with a non-conducting or insulating material.

5 The longitudinal movement of the rod f also depresses one end of the lever r , and thereby causes the pin r^2 at the other end to strike and puncture the strip o' , and so register the movement of the reversing-lever.

10 In Figs. 3 and 4 I show how my invention may be applied to several furnaces. Here there is one clock-work and bell for all the furnaces. In the case i there is a sliding rod f and lever r for each furnace. These rods and levers are
15 arranged side by side. The strip o' is made wide enough to extend across the path of all of the puncturing-pins of the levers r . Each rod f is provided with a pin, f^3 , which projects over a bar, s , pivoted to the side of the case i
20 at one end and extending over the spring m . When any one of the rods f is drawn down by the action of the reversing-lever of its furnace it in turn draws down the bar s , which, acting on the spring m , opens the circuit in the manner described with relation to Figs. 1 and 2.
25 The links c are each connected to their respective reversing-levers by a wire, t , which is held taut by a weighted or spring bell-crank lever, c^2 . In this way my invention may be applied
30 to any desired number of furnaces.

I have spoken of the "reversing-lever" of a furnace; but I do not limit myself to a lever, because in many cases the reversing-valves are rotary and are operated by a shaft. By moving the pivoted link c by means of the valve mechanism the apparatus may be operated as described.
35

The utility of my invention consists in the facts that it indicates the time when the reversal should be made, and thus aids in obtain-
40

ing regularity in the working of the furnace or furnaces, and that it records the time and regularity of such reversal, and thus imposes a check upon the attendants.

What I claim as my invention, and desire 45 to secure by Letters Patent, is—

1. The reversing mechanism of a reversing furnace or furnaces, in combination with a pivoted link or lever connected with and operated by said reversing mechanism, a sliding rod, the
50 circuit-breaker of an electric signal-circuit, and registering device, said circuit-breaker and registering device being operated by said sliding rod, for the purpose of indicating and registering the reversals of the furnace, substantially as described. 55

2. In combination with the reversing mechanism of a reversing furnace or furnaces, a pivoted link or lever, a sliding rod operating a contact spring or connection, a clock-work
60 composing the terminal of an electric battery intermittently in contact with said spring, and an electrical bell, also in electric contact with said spring, substantially as and for the purposes described. 65

3. In combination with the reversing mechanism of a reversing furnace or furnaces, a pivoted lever or link, a sliding rod, a lever operated by said rod and provided with a puncturing or registering point, a clock-work,
70 and a strip or tape operated by said clock-work and moving in the range of said puncturing or registering point, substantially as and for the purposes described.

In testimony whereof I have hereunto set 75 my hand this 25th day of May, A. D. 1882.

OGDEN BOLTON.

Witnesses:

T. B. KERR,

W. B. CORWIN.