

(No Model.)

E. R. WILDER.
SIGNALLING APPARATUS.

No. 514,297.

Patented Feb. 6, 1894.

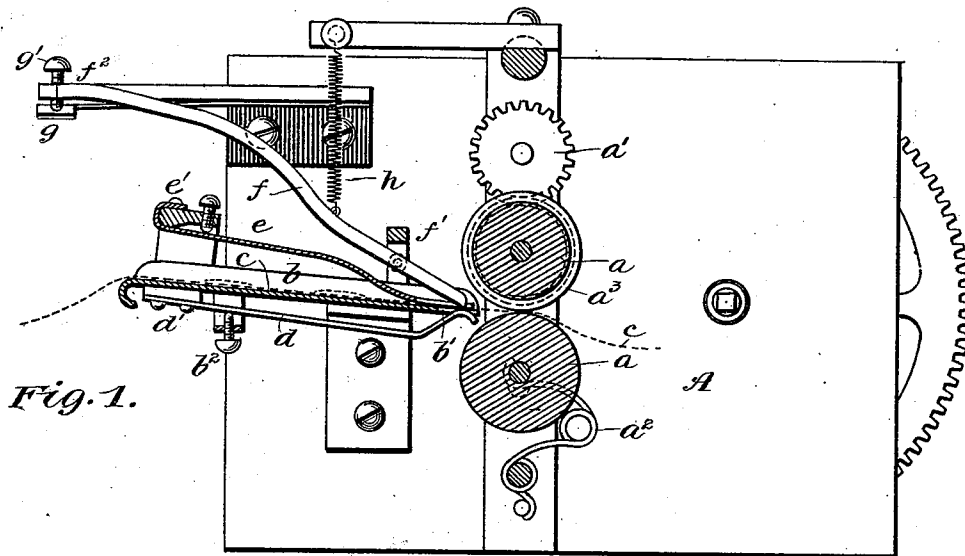


Fig. 1.

Fig. 2.

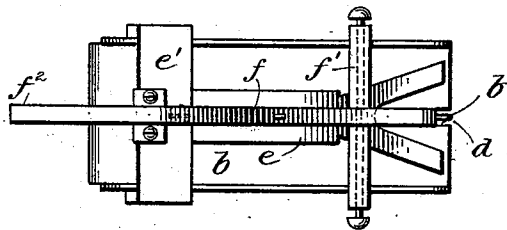
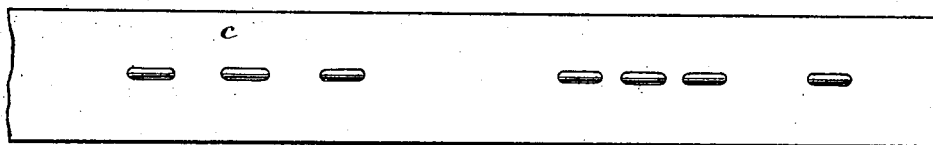


Fig. 3.



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SIGNALING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 514,297, dated February 6, 1894.

Application filed May 1, 1893. Serial No. 472,461. (No model.)

To all whom it may concern:

Be it known that I, EDMUND R. WILDER, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Signaling Apparatus, of which the following is a full, clear, and exact description.

My invention relates to repeaters for fire alarm telegraphs and other signaling systems. The apparatus is to be used in connection with a register, the function of which is to prepare in a certain way a strip of paper which is afterward passed through the apparatus constituting my present invention, for the purpose of repeating to different stations the signals which have been printed or otherwise formed upon the paper strip.

The invention consists of the details of construction which will be hereinafter fully described and pointed out in the claims.

Referring to the accompanying drawings, Figure 1 represents a section through that portion of the repeating instrument which constitutes my invention, and Fig. 2 is a plan of the tape guide and the spring resting thereon, and Fig. 3 is a plan of the tape.

Referring to the drawings by letter, A represents a frame which supports the gearing of the clock work of any suitable description. It consists of a motor which drives a pair of gripping rollers, *a*, through a pinion, *a'*. These rollers are pressed together by a spring, *a²*, so that they will grip the tape which passes between them. The center portion of the upper roller is provided with an annular groove, *a³* for a purpose which will hereinafter appear. Adjacent to the rollers and in line with their contacting surfaces is a tape-guide or trough, *b*, supported in any suitable manner. At the inner end of the trough, and centrally located is a small opening or slit, *b'*, over which the center portion of the tape, which is represented by the letter *c*, passes. To the under side of the trough is secured a long spring, *d*, fastened at the point, *d'*, and having its forward end bent upward and projecting into the slit, *b'*. An adjusting screw, *b²* is provided to vary the upward pressure of this spring. The point of the spring is curved and presents a smooth, sliding surface against

the tape. Above the trough is fixed another spring, *e*; it is fastened to a bracket, *e'*, and extends forward nearly to the end of the tape-guide, where it rests upon the upper surface of the tape. This forward end is widened slightly, and is bifurcated and straddles the slit, *b'*. Above the spring is located a long arm, *f*, which is pivoted in the bracket, *f'*, on delicate bearings; its forward end rests upon the tape between the bifurcated ends of the spring, *e*, and its rear end is provided with a contact point, *f²*, which is adapted to engage with a corresponding contact spring, *g*. The spring, *g*, is adjustable vertically by means of the screw *g'* to vary the throw of the arm, as will hereinafter appear. It will be observed that the forward end of this arm is much shorter than the rear end, and any movement of the forward end will be several times multiplied at the rear end. A light coiled spring, *h*, is attached to the arm to hold it normally out of contact with the point, *g*.

Fig. 3 shows the plan of the tape after it is passed through the register. The register is provided with an embossing device which depresses the central portion of the tape at various points and represents the signals received and to be repeated. This embossing makes a series of projections on the upper side of the tape and a corresponding series of indentations on the under side thereof.

In the operation of the machine, the tape is fed through the guide, *b*, at a regular speed by the rollers, *a*. As it passes along, the end of the spring, *d*, on the under side of the guide, springs into the depressions in the tape, and simply drags along on the flat portions intervening between the depressions. The spring, *e*, pressing on the upper side of the tape, holds it in position and prevents the spring, *d*, from lifting or buckling the tape where it drags over the flat portions thereof. In the meantime the inner end of arm *f* is being held against the upper surface of the tape by the spring, *h*, and as each of the projections in the tape pass under it, it is raised and closes the electric circuit between the points *f²* and *g*. Between the projections on the tape the inner end of the arm drops and the circuit opens. The end of the spring, *d*, and the end of the arm, *f* are exactly opposite

each other on the opposite sides of the tape, so that the point of the spring acts as a bolster to hold up the projections in the tape while they are being dragged under the end of the arm. This insures a positive and clean closure of the circuit by the projections in the tape, and furthermore the tape is not injured and may be used a second time either in the same, or a different, machine. The central groove in the upper roller allows the tape to pass through without its projections being flattened out by contact with the surface of the roller.

It is obvious that the circuit-controlling arm may be pivoted at one end and the contact point in the middle if desired, and it is further obvious that its function may be performed by a spring.

It will be observed that the embossed signals on the tape cause the movement positively of both the upper arm and lower arm which bear against its opposite sides, and, therefore, either of these arms may control the circuit.

Having described my invention, I claim—

1. A signal tape having the signals embossed therein, in combination with a circuit closer moved by contact with the embossed surface and a bolster to hold up the embossed portions while acting on the circuit closer.

2. In a signaling device, a moving tape having embossed characters upon it in combination with two arms or springs respectively bearing upon the opposite faces thereof and opposing each other, one arm riding over a projection while the other enters the corresponding depression in the tape, and one of said arms controlling an electric circuit.

3. In a signaling device, a moving tape having embossed characters upon it, in combination with two arms or springs respectively bearing upon the opposite faces thereof and

opposing each other, one arm riding over a projection while the other enters the corresponding depression in the tape, one of said arms controlling an electric circuit, and a tension device, such as a spring, holding the tape taut to prevent displacement of the tape while flat portions are passing between said two arms substantially as described.

4. In a signaling instrument, a tape having embossed characters upon it, in combination with a guide therefor, said guide having an opening beneath the tape, a spring operated arm or finger projecting through said opening and bearing against the tape, a second spring pressed arm or finger bearing upon the opposite side of the tape and opposing the first mentioned arm or finger and controlling an electric circuit and a feeding device for moving the tape between the two arms or fingers.

5. In a signaling instrument, a tape having embossed characters upon it, in combination with a guide therefor, said guide having an opening beneath the tape, a spring operated arm or finger projecting through said opening and bearing against the tape, a second spring pressed arm or finger bearing upon the opposite side of the tape and opposing the first mentioned arm or finger and controlling an electric circuit, a feeding device for moving the tape between the two arms, and a spring pressing upon the tape on the opposite sides of said opening to hold it under tension while passing the same, substantially as set forth.

In testimony whereof I subscribe my signature in presence of two witnesses.

EDMUND R. WILDER.

Witnesses:

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