No. 619,276. Patented Feb. 14, 1899.

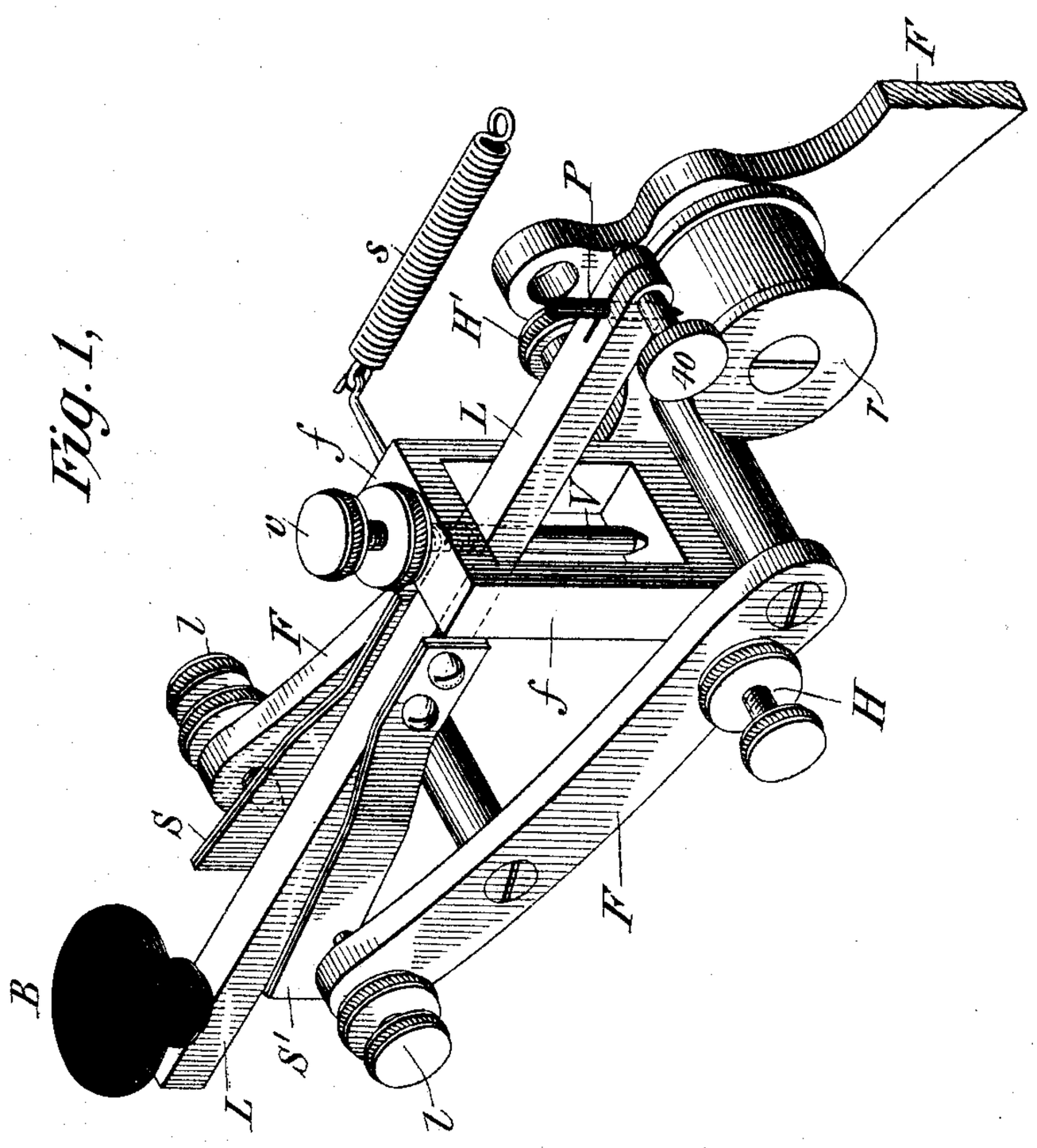
W. L. CANDEE & R. VARLEY.

SIGNAL RECORDING APPARATUS.

(Application filed June 4, 1898.)

(No Model.) 3 Sheets—Sheet 1.

Fig. 1.



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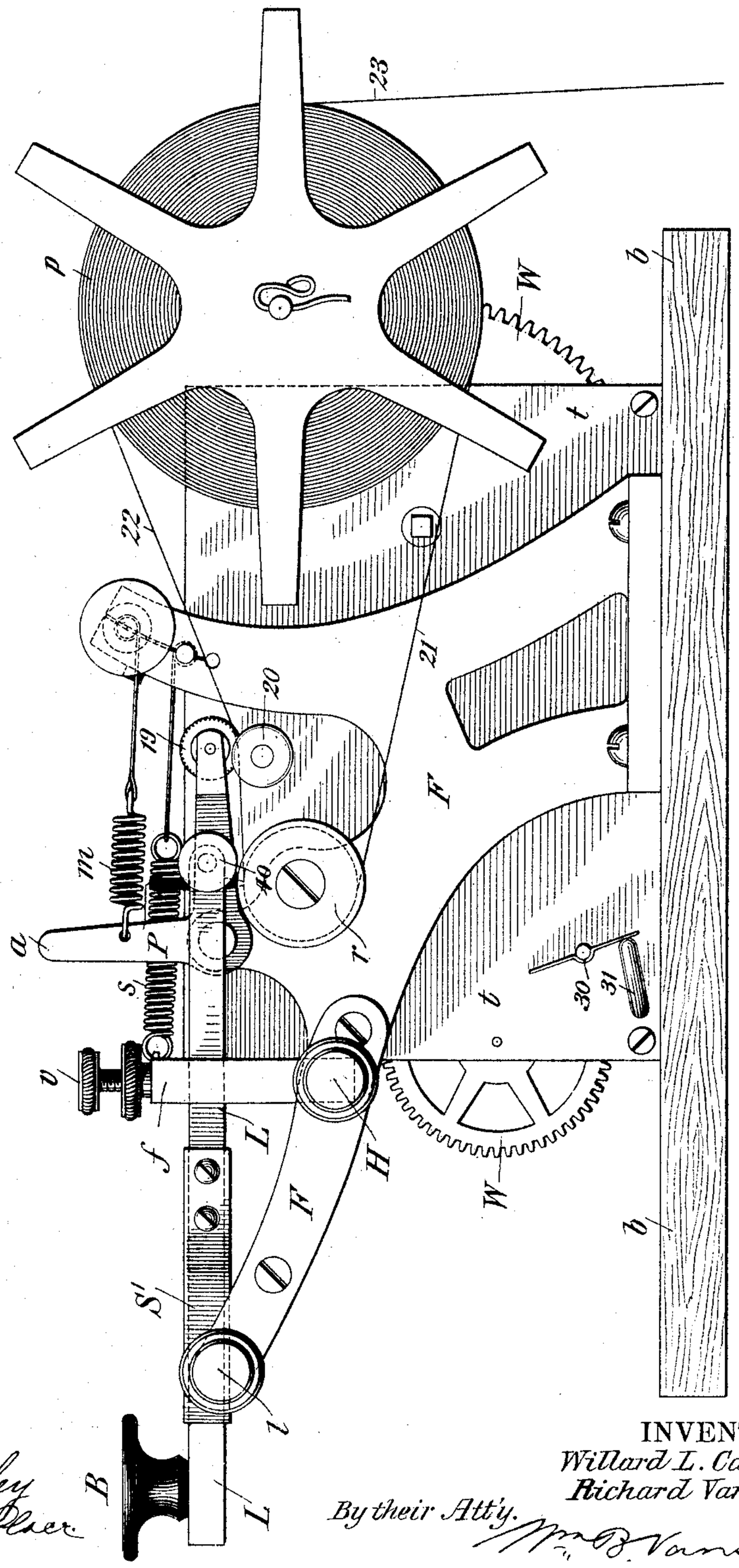

Fig. 2.

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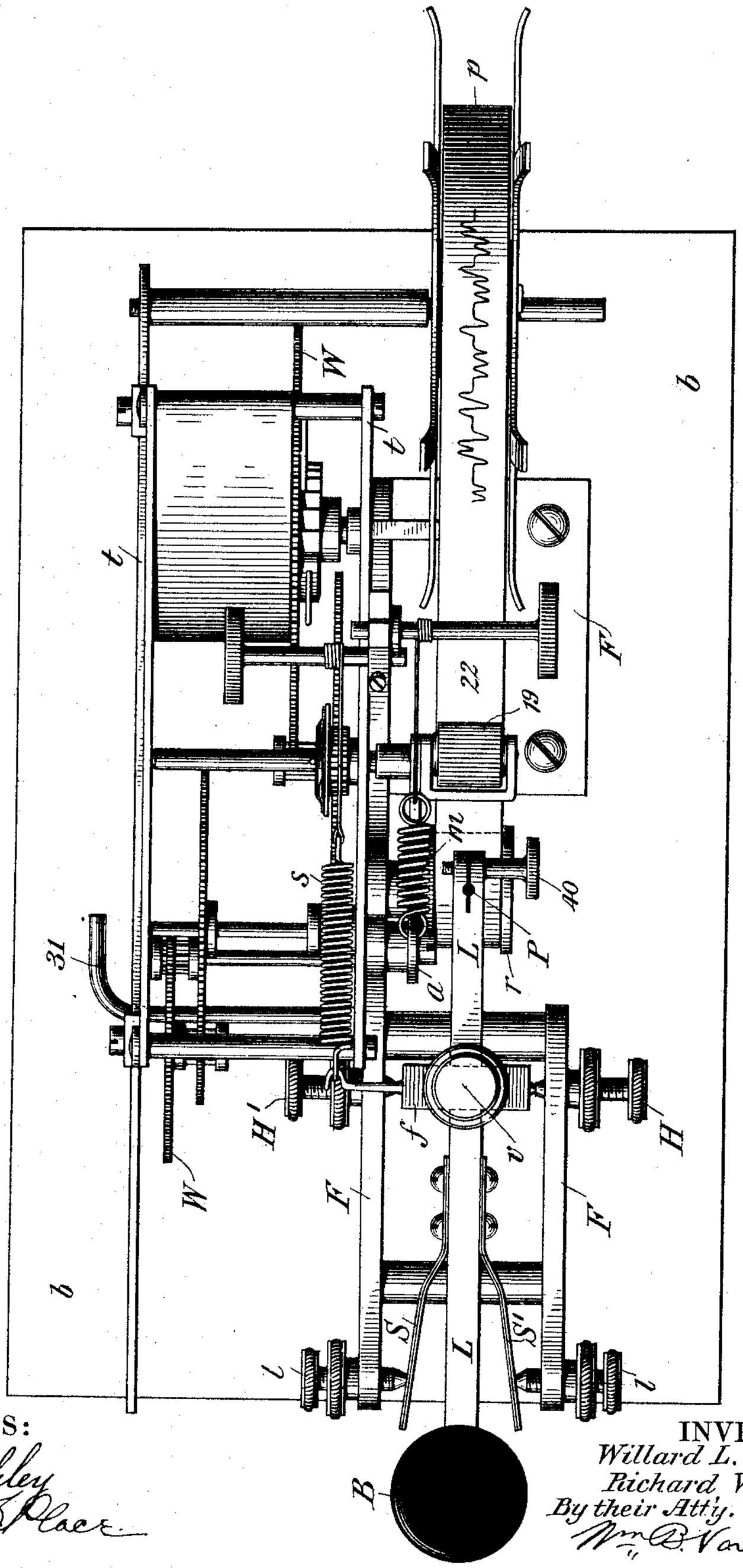
Fig. 3.



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UNITED STATES PATENT OFFICE.

WILLARD L. CANDEE, OF NEW YORK, N. Y., AND RICHARD VARLEY, OF ENGLEWOOD, NEW JERSEY, ASSIGNORS TO SAID CANDEE, TRUSTEE.

SIGNAL-RECORDING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 619,276, dated February 14, 1899.

Application filed June 4, 1898. Serial No. 682,526. (No model.)

To all whom it may concern:

Be it known that we, WILLARD L. CANDEE, residing in New York, (Brooklyn,) in the county of Kings, State of New York, and RICHARD VARLEY, residing at Englewood, in the county of Bergen, State of New Jersey, citizens of the United States, have invented certain new and useful Improvements in Signal-Recording Apparatus, of which the following is a specification.

Our invention is an improvement in manually recording visual signals.

It is the common practice in military and naval operations to signal between separated points by the use of flags, lights, and audible signals like steam-whistles. The transmitting-station being visible to the receiving-station, at the latter point it is customary to locate an observer and a recorder. This involves the employment of two separate operators, which is often inconvenient and sometimes impossible of attainment.

The object of our invention is to provide a mechanical device whereby the observer alone may perform the functions already assigned to him and without dividing his attention rapidly record any and all signals transmitted.

The transmitting operator usually employs a code and when employing the flag-signal gives it motion in four directions—up and down in the vertical plane of the operator and right and left in a horizontal plane. The elevation of the flag indicates the start; a movement to the right, the numeral "1" or a dot; a movement to the left, the numeral "2" or a dash, and the various combinations produced by successive movements a complete signal, while lowering the flag in the plane of the operator indicates a space between words or a termination. For the purpose of recording these various movements without distracting the attention of the observer we provide a lever which is pivoted at or near its center to move in two directions at right angles to each other. In substance this is a universal joint or pivoted support. We provide springs by which the lever is maintained normally at a central or unison point, a handle or button by which the lever may be manipulated, and a recording or contact point preferably at the opposite end from that carrying the manipulating-button. This recording-point may be either a pen having a uniform ink-supply, or it may be a pencil-point or an embossing-point.

We prefer to employ a roll of paper in the form of a tape, with a small mechanical motor to produce its continuous progression in proximity to the recording-point.

The use of our invention renders practicable the employment of a receiver or observer entirely ignorant of the signals or the combinations constituting the code. Furthermore, the speed with which a message can be received is by the use of our improvement greatly increased and this in the hands of an unskilled observer. This increase in speed of reception renders feasible the use of more rapid motion in transmission and permits of adapting automatic devices to increase the speed of transmission.

The accompanying drawings illustrate our invention.

Figure 1 shows the essential parts of the recording-lever with its operating-handle, recording-point, and the pivoted support affording movement in four directions. Fig. 2 is an elevation of the same with the recording-surface and mechanical motor, and Fig. 3 is a top plan view of the same.

L is the recording-lever. F is the frame in which it is supported. There is a small frame *f* pivoted upon the centers H H′, which are in the form of screws with set-nuts. There is a vertical pivot V fixed in the lever L and suitably supported in the frame *f*. The screw *v* forms the upper bearing-point for the pivot V, whose lower end is journaled in the frame *f*. The pivot V affords movement in a horizontal plane, and the frame *f*, pivoted as described, affords movement in a vertical plane. The two pivots afford movement at right angles with respect to each other and in effect constitute a universal joint or bearing. Upon opposite sides of the lever L there are blade-springs S and S′, and there is an adjustable limiting-screw *l* for each of said springs. The operating or finger button B we prefer to place at one extremity of the lever, and a recording

or contact point P we place at the opposite end of the lever. As shown, this consists of a stick of black-lead gripped and held by the screw 40.

r is a roller, over which passes the recording-surface, such as a strip of paper, and there is a retracting-spring *s* which serves to hold the recording-point in contact with the surface of the paper, while the springs S and S′ normally hold the lever and its recording-point in a central position.

In Figs. 2 and 3 the recording apparatus is more completely shown. It is convenient to place the whole arrangement upon a base of any suitable material *b*. We provide vertical side plates *t*, fixed to the base, and between these plates, journaled therein, is a train of wheels W, driven by a spring-motor in a well-known manner, including a fly 30 and a stop therefor 31. Upon the exterior of the plate *t* there are a rotating reel of paper *p* and a friction-roller 20. There is also a right-angled lever *a*, carrying a serrated roller 19, engaging with the roller 20. The lever *a* is pivoted at its elbow and is provided with a spring *m*. An adjusting-spindle regulates the degree of pressure between the rollers 19 and 20. The roller 20 is driven from the spring-motor, which, as shown in Fig. 2, coöperating with the roller 19, serves to draw the paper along at a gradual and substantially uniform speed. The paper passes from the under side of the reel *p* via 21, *r*, 20, 22, and 23, by which means the record is always in sight.

The operation of the apparatus is as follows: Let us assume signals are being transmitted by a flag manipulated by a signalman at a distant and visible point. A solitary observer takes the button B in his hand and releases the motor by turning the stop 31 to disengage the fly. The recording-point is normally held in a central position in contact with the recording-surface. As the flag is moved to the right or the left the observer coincidently moves the button B to the right or left. The space between single words is shown by dropping or depressing the flag and the observer elevates the recording-point by depressing the button B, causing the point to leave the record-surface and show a blank space on the record. The resulting record, as shown in Fig. 3, which represents a single code-word, indicates the exact movements given to the flag, and the significance of this may be entirely unknown to the observer. By this means increased secrecy is given to signaling, and the rapidity with which signals are transmitted may be greatly increased, as the button B can be made to move in any direction imparted to the transmitted flag-signal, while but a single observer is employed in the work.

What we claim, and desire to secure by Letters Patent, is—

The combination of a lever pivoted on a universal joint, a recording-point fixed thereto, a finger-piece on said lever whereby it may be moved by hand into either of four positions, springs normally holding said lever in a central position, a spring to depress the recording-point and a motor-driven recording-surface therefor, substantially as described.

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