

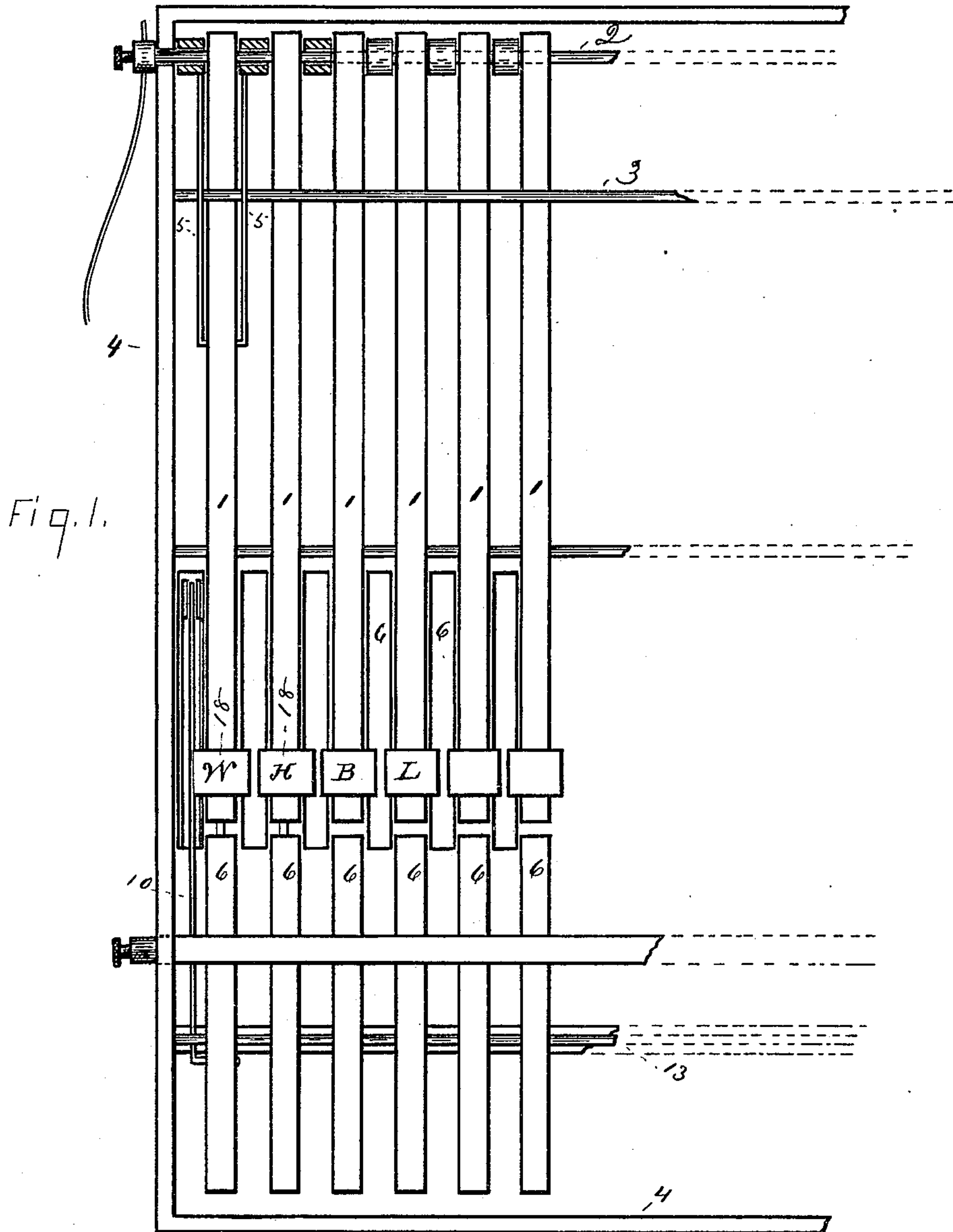
(No Model.)

2 Sheets—Sheet 1.

W. H. BLOOM.
TELEGRAPHIC TRANSMITTER.

No. 368,450.

Patented Aug. 16, 1887.



WITNESSES—
C. L. Sheldon
G. W. Drake

INVENTOR—
Willard Henry Bloom
By Manahan and Ward
His Attys.

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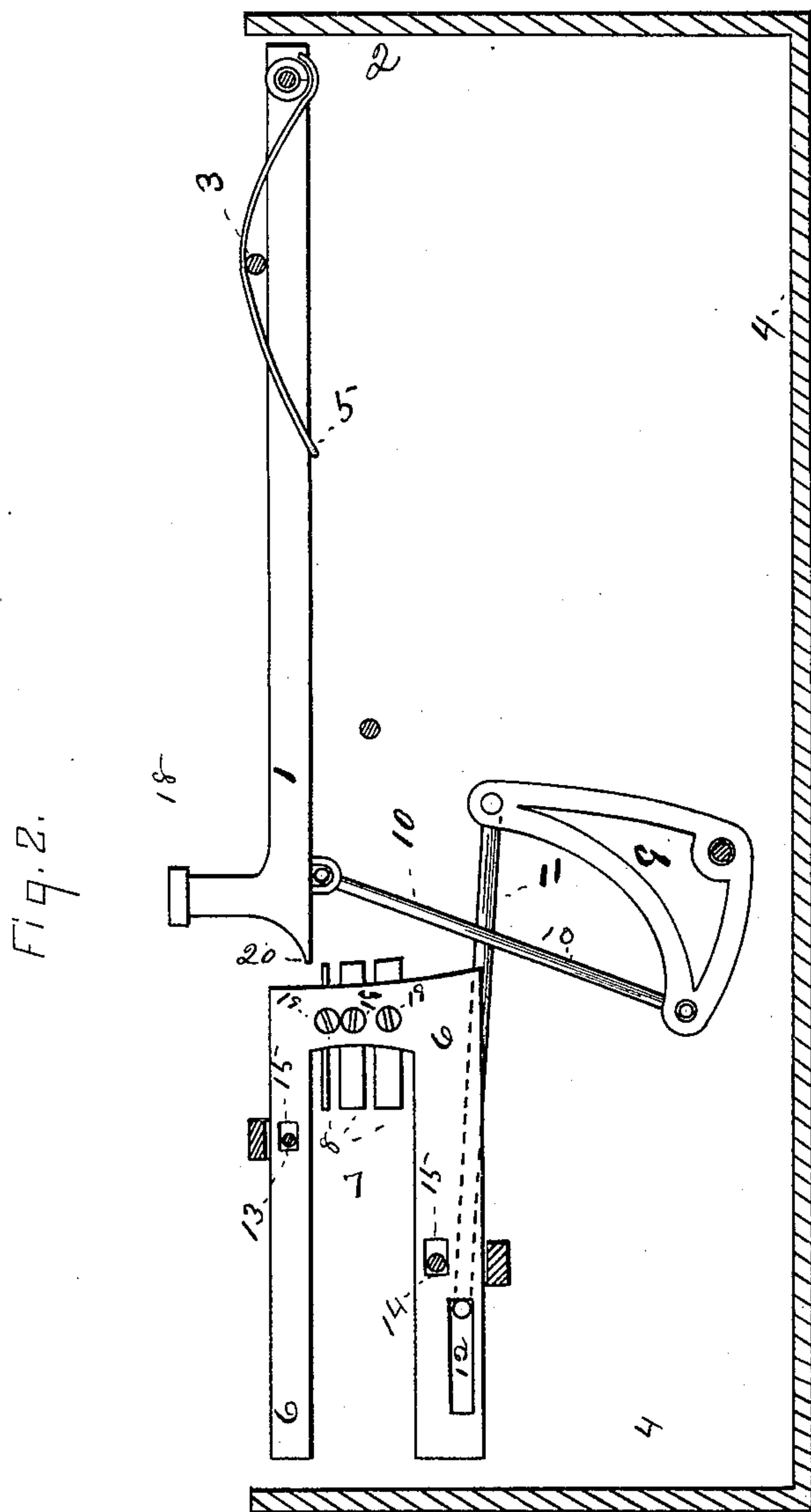
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UNITED STATES PATENT OFFICE.

WIELAND H. BLOOM, OF GALT, ILLINOIS.

TELEGRAPHIC TRANSMITTER.

SPECIFICATION forming part of Letters Patent No. 368,450, dated August 16, 1887.

Application filed March 26, 1887. Serial No. 232,496. (No model.)

To all whom it may concern:

Be it known that I, WIELAND HARRY BLOOM, a citizen of the United States, residing at Galt, in the county of Whiteside and State of Illinois, have invented certain new and useful Improvements in Telegraphic Transmitters; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

My invention has reference to certain improvements in telegraphic transmitters pertaining, essentially, to increased facility and rapidity in sending messages.

It is well known that telegraph operators of average proficiency can receive messages faster than they can send them. The object of my invention is to enable operators to transmit telegraphic letters as fast as the most proficient operator will be able to receive them. In the drawings, Figure 1 is a partial plan view of my invention. Fig. 2 is a partial side elevation thereof.

In Fig. 1 will be seen the keys 1 1 1, arranged something after the style of letter-keys in the usual type-writer. These keys are pivoted at their forward ends upon a cross-rod, 2, (suitably insulated from the frame of the machine,) or in any other suitable manner. The interior cross-rod, 3, suitably fixed transversely in the wooden frame 4, serves as a central seat for the spring 5. The latter, having its forward end fastened under the rod 2, its central portion passed over the rod 3, and its rear end locked under the key 1, serves to hold the said key at the upper limit of its oscillation when not forced downward by the operator, and returns said key to said upward limit after its use.

In front of the keys 1, and in direct prolongation thereof, are seated adjustably the letter-carrying frames 6 6. The frames 6 are seated edgewise, have their central portions, 7, removed, and have projected through their front edge adjustably-seated short letter-bars 8. The bars 8 are arranged in vertical series in such relation to the keys 1, respectively, as that the rear end of said key in its down-

ward oscillation will pass over and slightly touch the contiguous ends of the letter-bars 8.

I do not deem it essential to fully show or describe each letter of the alphabet, as the description of one letter will sufficiently indicate my improvement.

In Fig. 2 is shown the letter *w*, as represented in my letter-frames. This letter consists of one dot and two dashes or strokes. The letter-bars 8, therefore, for producing it consist of one narrow bar and two wide ones seated in succession thereunder, having their longest transverse diameter in a vertical plane. These letter-bars are seated, as aforesaid, in such relation to the key 1 as that when the latter is moved downward it will pass over the adjacent ends of said bars in succession, beginning with the upper one, and in such passage will intermittently open and break the electrical circuit. The key 1 passes downward over the inner or front end of the upper bar in the said letter *w*, slightly touching said bar, and of course the circuit will be closed but for an instant, and the result at the point of delivery will be two quickly-succeeding sounds or a dot. After the key 1 has passed the upper bar or element in the letter *w*, and before it has reached the second bar in said letter, there will be a momentary breaking of the circuit. The key 1 then passes over the second or central bar in said letter *w*, slightly touching said central bar, and the vertical diameter of the contiguous end of said second or central bar being greater than that of the upper bar in said letter the key 1 will be longer in passing over the contiguous end of said central bar, and therefore the circuit will be closed for a longer period than before, and the result will be a longer interval between the succeeding sounds—as a dash. The third or lower bar in the letter *w* will have the same effect when the key 1 passes over its contiguous end as described of said central bar. The total effect, therefore, of passing the key 1 down over and slightly touching the adjacent ends of the three letter-bars in the said letter *w* will be one short closing and two long closings of the circuit with their intermediate breaks, or one dot and two dashes, representing the telegraphic letter *w*. The other letters are arranged in reference to their adjacent keys 1 in substantially the mode described of arranging the

letter *w*, the rods or bars being arranged in each letter-frame of such vertical width at their forward ends and with such interrelation as that the passage downward of the adjacent key 1 over the series of letter-bars opposite the same will produce the sounds or dots or dashes used to indicate the respective telegraphic letters. A bell-crank lever, 9, is suitably insulated and pivoted at its angle to the frame 4, so as to oscillate in a vertical plane. A substantially vertical pitman, 10, is pivoted at its upper end in the under side of the key 1, and at its lower end in the outer extremity of the horizontal arm of the crank 9. A substantially horizontal pitman, 11, is pivoted at its forward end in the upper extremity of the vertical arm of the bell-crank 9, and has its rear end inserted laterally in the horizontal slot 12, formed longitudinally in the letter-frame 6. The frame 6 is suspended edgewise, as aforesaid, on the upper transverse rod, 13, and the lower transverse rod, 14, each of which are seated in lateral longitudinal slots 15, formed in said frames 6 near the upper and lower edges thereof, respectively.

In Fig. 2 the position and relation of the letter-frames 6 and the keys 1 are shown with the machine at rest. In this condition the cross-rods 13 and 14 are at the rear ends of the slots 15 in the frames 6, and the rear end of the pitman 11 is at the front end of the slot 12 in said frames, holding the latter at the forward limit of their movement. As the key 1 is oscillated down over the adjacent ends of the letter-bars 8, and during the period of such passage the pitman 10 imparts the partial oscillation to the bell-crank lever 9, and the rear end of the pitman 11 passes to the rear end of the slot 12 without producing any movement of the letter-frame 6. After the key 1 has passed beyond the lower letter-bar and the circuit is broken or open, said key passes a sufficient distance beyond said lower letter-bar to cause the rear end of the pitman 11 to press against the rear wall of the slot 12 and force the letter-frame 6 backward, sliding on the slots 15, so that said letter-bars 8 shall be out of the way of the return or upward movement of the key 1. The key 1 in its upward stroke, occasioned by the spring 5, passes slightly above the upper letter-bar, and the relation of the parts is such that during the upward movement of the key 1, and while the latter is opposite the adjacent faces of the letter-bars 8, there is no forward movement of the letter-frame 6, and the key 1 in its upper passage does not touch the letter-bars 8, and while the key 1 is passing upward opposite said letter-bars 8 the rear end of the pitman 11 is drawn to the front end of the slot 12 without moving the letter-frame 6, and during

the interval that the key 1 passes through the residue of its arc above the upper letter-bar the pitman 11, by engagement with the front wall of the slot 12, throws the letter-frame 6 forward in position for the letter-bars 8 to touch the key 1 in the next downward movement of the latter, the letter-frame 6 sliding, as aforesaid, in its slots 15.

The two parts of the machine can be connected, respectively, to the main wires by means of short wires attached, respectively, to the pivot-rod 2 or keys 1 and letter-bars 8 in any suitable manner.

Each key 1 is provided with a finger-cap, 18, upon the upper surface of which is inscribed its indicating-letter.

To compensate for wear and afford means of adjustment, the letter-bars 8 are seated adjustably in the frame 6 by means of transverse set-screws 19.

What I claim as my invention, and desire to secure by Letters Patent of the United States, is—

1. In a telegraph-transmitter, the combination of the pivoted key 1, reacting spring 5, letter-frame 6, provided with slot 12 and slots 15, and seated movably on transverse rods 13 and 14 in the line of prolongation of key 1, letter-bars 8, seated in the forward end of frame 6 adjacent to key 1, bell-crank lever 9, pivoted vertically at its angle, vertical pitman 10, connecting the horizontal arm of lever 9 to key 1, and pitman 11, connected at its forward end to the vertical arm of lever 9, and having its rear end inserted in and adapted to traverse slot 12, and having its stroke somewhat longer than said slot 12, substantially as shown, and for the purpose described.

2. In a telegraph-transmitter, the combination of key 1, vertically pivoted, reacting spring 5, adapted to return said key, letter-frame 6, seated movably in line with said key 1, letter-bars 8, seated in the front end of frame 6 and contiguous to key 1 in the downstroke of the latter, and means, substantially as shown, for positively moving the frame 6 from said key 1 during that portion of the downstroke of the latter which occurs after said key has passed the bars 8, and for returning said frame to its original position during that part of the upstroke of said key 1 which occurs after said key has passed said bars 8, substantially as shown, and for the purpose described.

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

WIELAND H. BLOOM.

Witnesses:

C. E. STURTZ,
GEORGE H. DRAKE.