

(No Model.)

E. R. WATERHOUSE.
MECHANICAL TELEGRAPH INSTRUMENT.

No. 429,982.

Patented June 10, 1890.

Fig. I.

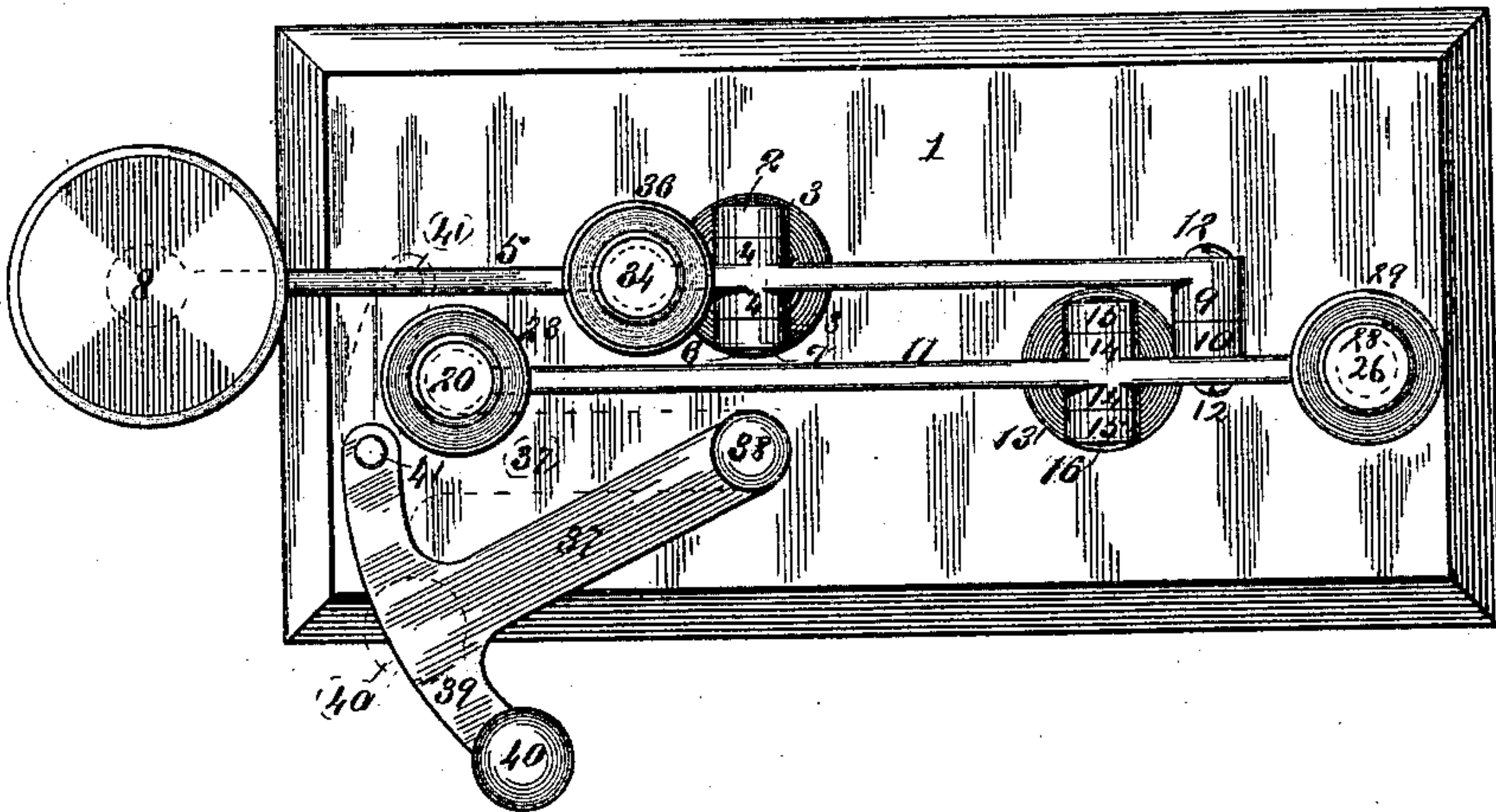


Fig. II.

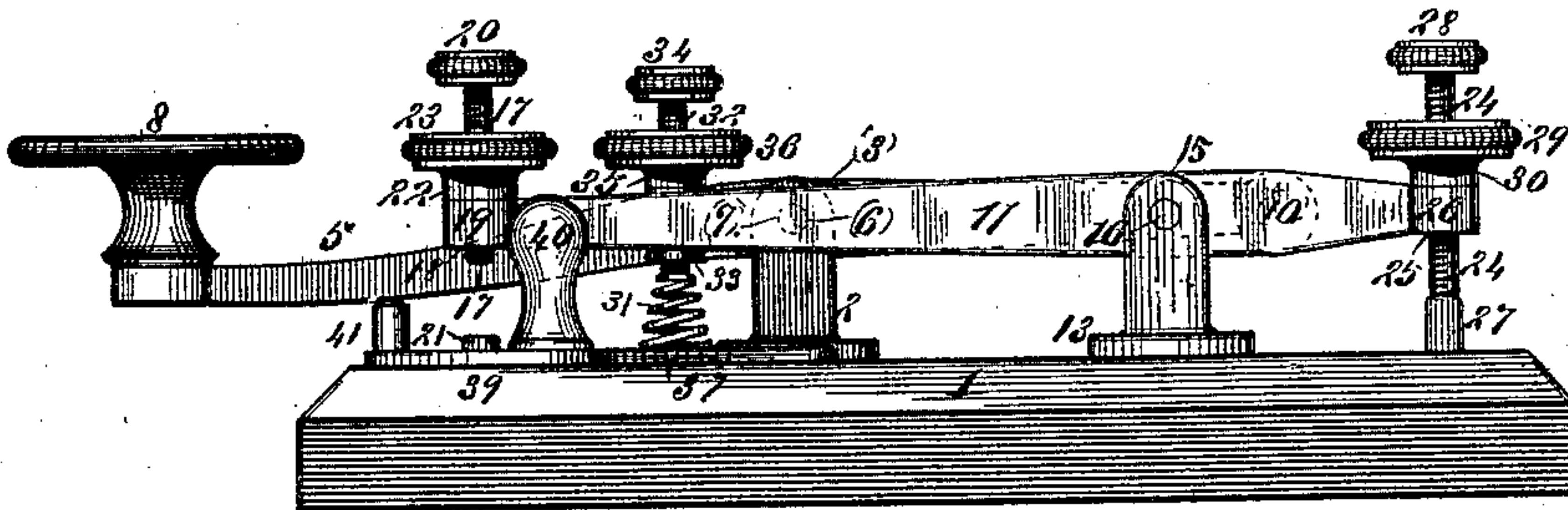
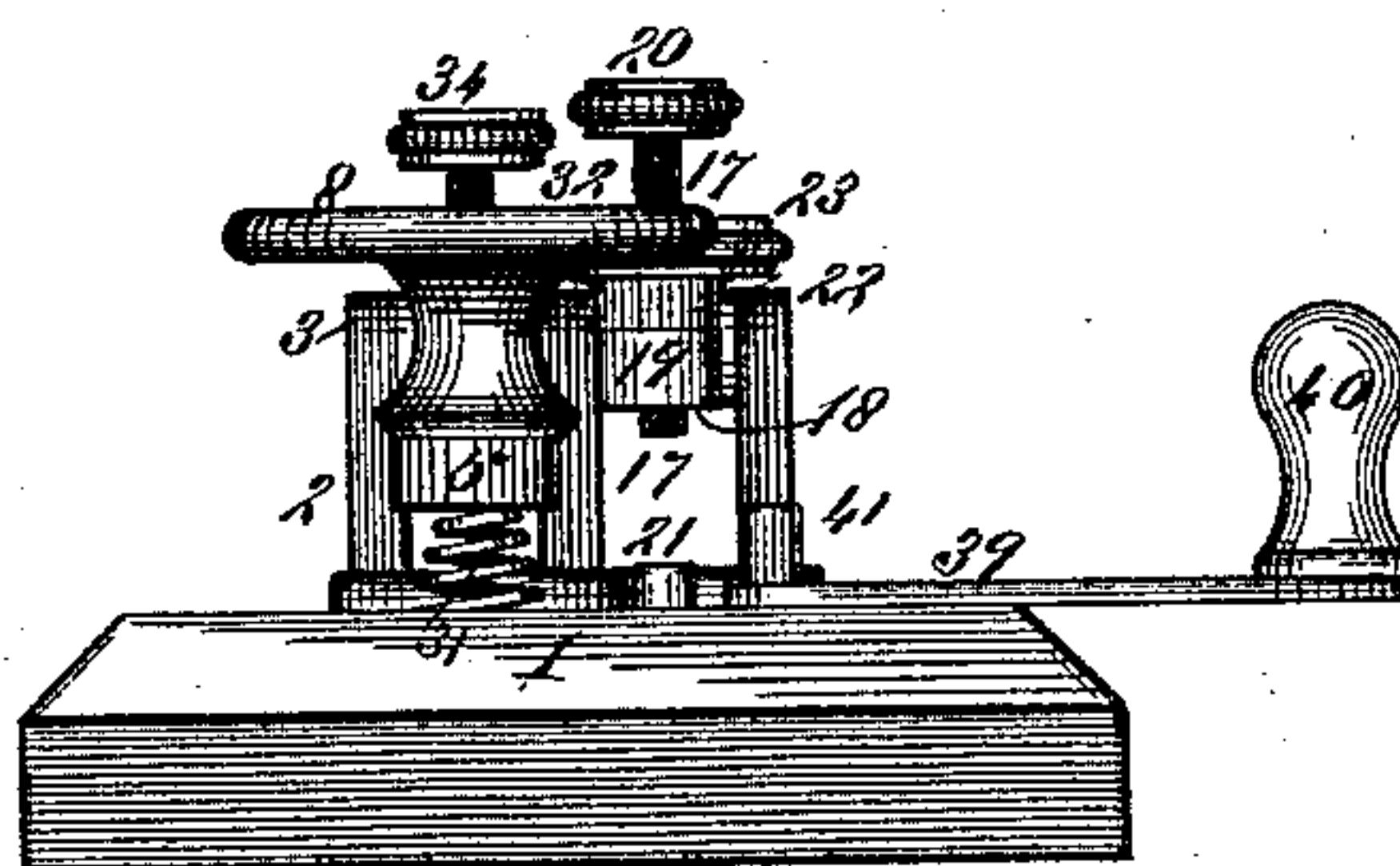


Fig. III.



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EUGENE R. WATERHOUSE, OF ST. LOUIS, MISSOURI, ASSIGNOR OF ONE-HALF
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MECHANICAL TELEGRAPH-INSTRUMENT.

SPECIFICATION forming part of Letters Patent No. 429,982, dated June 10, 1890.

Application filed July 9, 1889. Serial No. 316,977. (No model.)

To all whom it may concern:

Be it known that I, EUGENE R. WATERHOUSE, of the city of St. Louis, in the State of Missouri, have invented a certain new and useful Improvement in Mechanical Telegraph-Instruments, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

This invention relates to an instrument for the use of students in the art and practice of telegraphy, to initiate them in the manipulation of the transmitter and the reading of the record; and the invention consists in features of novelty hereinafter fully described, and pointed out in the claims.

Figure I is a top view of the instrument, and also shows the switch or cut-off that represents the circuit-closer with the switch open. Fig. II is a side view of the same, and shows the switch of the cut-off closed; and Fig. III is an end view of the same with the cut-off switch open.

Referring to the drawings, 1 represents the platform or sounding-board of the transmitter, which platform is surmounted by the pedestal 2, between the bifurcated forks 3 of which is seated the projecting naves 4, which swell from each side of the actuating-lever 5 in a central perforation, in which naves and in said lever is seated the journal-pin 6, whose projecting pivotal ends are loosely seated in the perforate bearings 7 in the forks 3 of said pedestal 2, making a fulcrumal pivotal bearing. 8 is the tappet-key through which said actuating-lever is manipulated. 9 represents the side bearer-nave at the inner end of said actuating-lever, which registers with the side bearer-nave 10 of the double pivoted armature-arm 11, and said actuating-lever is operatively connected with and pivotally coupled to the said armature-arm by the pivot-pin 12, whose bearing-seat is in said corresponding naves.

13 represents the supporting-pedestal that carries the armature-arm, the projecting naves 14 of which arm are seated between the forks 15 of said pedestal, and are pivotally connected therewith by the journal-pin 16.

17 represents the tappet-screw, which is adjustable in its screw-seat 18 in the head 19 of

the armature-arm when operated by the hand-disk 20, that surmounts it, to adjust the length of stroke of said tappet in its descent on the sounding pin or anvil 21, that surmounts the platform or sounding board. A hand-screwed jam-nut 22 on the tappet-screw, after the adjustment of said tappet-screw, is screwed down onto its seat on the head of the armature-arm by the hand-disk 23, so as to lock said adjustment.

24 represents the stay-screw, which is adjustable in its screw-seat 25 in the secondary head 26 at the rear end of the armature-arm, thus acting as a coadjutant element, with the tappet-screw itself to regulate the length of movement of the tappet-stroke by increasing or diminishing, respectively, the reactionary movement of that end of the arm and of said stay-screw by the length of travel allowed the stay-screw previous to coming into contact with the buffer pin or anvil 27, that surmounts the rear end of the platform, and which thus arrests the further reactionary movement of said armature-arm. This action of the stay-screw or rear tappet effects what is termed the "back-stroke." The hand-disk 28 operates said stay-screw, and the hand-disk 29 operates the jam-nut 30, which locks the set of said screw or tappet.

31 represents a spiral reactionary spring whose base is secured to the platform or sounding-board, preferably by being inserted in a countersink therein, and within whose apex the bevel-point of the set-screw 32 engages, the said set-screw being screw-seated within the swell 33 of the operating-lever. The largest diameter of said bevel-point is in excess of that of the apex of the spiral spring, so that while the reduced point enters within the spring and holds it to its vertical position the enlargement of the bevel above is sufficient to prevent the body of the screw from following, and consequently as said set-screw is turned down by the action of the hand-disk 34, that surmounts it, it compresses the spring and increases its tension. When, on the other hand, the action of the set-screw is reversed, the tension of the spring is reduced. The jam-nut 35 locks the adjustment of said set-screw 32, and in consequence, also, the adjustment of the tension of the spiral spring, when

it is turned down on the set-screw by the action of the hand-disk 36 until its jam-seat is effected on the top of the actuating-lever 5.

37 represents the cut-off switch, whose pivotal attachment end is secured to the platform or sounding-board of the instrument by the pivot-pin 38, and one arm of whose T-head 39 carries the handle 40, that operates it, and the other arm carries the buffer-stud 41, that when the switch is closed is brought immediately under and stays or buffs the action of the actuating-lever 5, and is thus in the hands of the student the substitute of the circuit-closer of the usual transmitter, by which the operator cuts off the line-connection from the instrument. In this student's practicing-instrument the buffer-stud on the switch when said switch is closed is thrown round under the actuating key-lever and buffs said lever from actuating the transmitter.

This instrument is devised for the use of students who are learning the art and practice of telegraphy either in colleges or in private studies while qualifying for the position of operators. It will be seen that by the system of pivotal levers here devised in the key and armature an extended multiple of the vertical action of the tappet is effected, which largely increases the rapidity of its movement and the consequent sound from the tappet as it contacts with the anvil and definitely adds to the distinctness of the report.

The student by the use of this instrument is very materially aided in the acquisition of the delicate sense of touch and ready manipulation of the transmitter peculiar to efficient operators; also, not only is he thus soon educated to the use of the transmitter in sending messages, but he also learns therefrom not only the initial steps in the art of telegraph reading, but by practice can learn therewith to be a rapid and accurate reader.

The use of the cut-off switch familiarizes the student with his subsequent practice as an operator in the constant use of the circuit-

closer when leaving the instrument, so as not to leave the line open. The lack of attention with some young or inexperienced operators in this particular is a fruitful source of trouble all along the line, and it is thus considered best that students while practicing on and familiarizing themselves with the transmitter should also cultivate the invariable practice of closing the switch or circuit when discontinuing the use of the instrument.

I claim as my invention—

1. In a mechanical telegraph-instrument, the combination of the sounding-board, the bifurcated pedestal 2, that surmounts said board, the actuating-lever 5, that has a fulcrumal pivot-bearing on said pedestal, the bifurcated pedestal 13, the armature-arm 11, having a pivotal bearing on said pedestal, the pivotal connection of the inner terminal of said actuating-lever to said armature-arm, and the adjustable tappet-screw 17, the fulcrumal and pivotal bearings being arranged to multiply the length and rapidity of the stroke of the tappet, substantially as described, and for the purpose set forth.

2. In a mechanical telegraph-instrument, the combination of the sounding-board, the bearing-pedestals that surmount said board, the actuating-lever 5, the armature-arm 11, the adjustable tappet-screw, the anvil it strikes, the stay or back-stroke tappet-screw, the anvil it strikes, the fulcrumal and pivotal bearings of said actuating-lever and said armature-arm being arranged to multiply the length and rapidity of stroke of said tappet-screws, the spiral reactionary-spring 31, that re-elevates the key, the set-screw 32, that adjusts the tension of said spring, and the jam-nut 35, that locks said adjustment, substantially as described, and for the purpose set forth.

EUGENE R. WATERHOUSE.

In presence of—

BENJN. A. KNIGHT,
SAML. KNIGHT.