

No. 670,980.

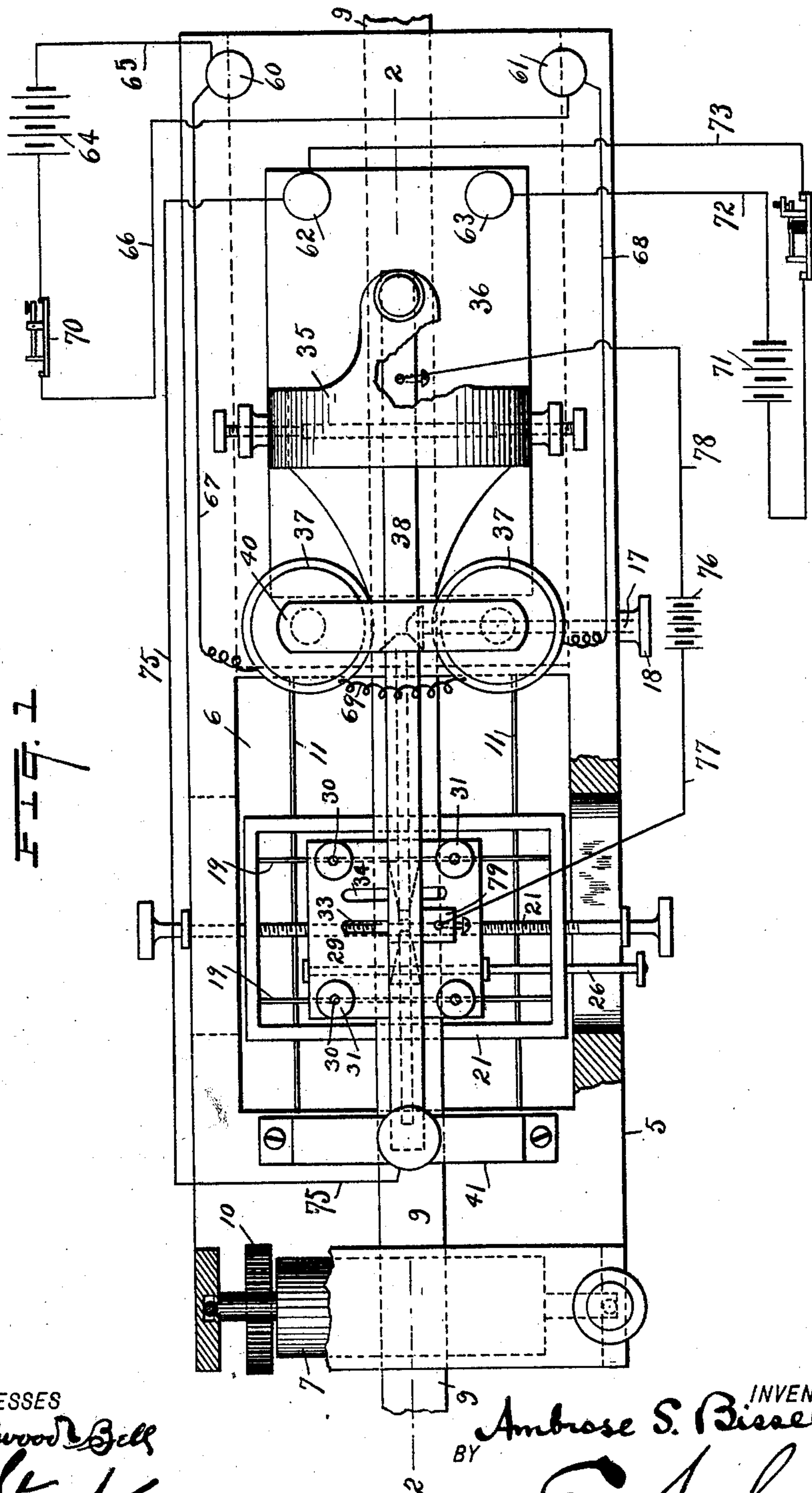
Patented Apr. 2, 1901.

A. S. BISSELL.
TELEGRAPHIC INSTRUMENT.

(Application filed Sept. 4, 1900.)

(No Model.)

2 Sheets—Sheet 1.



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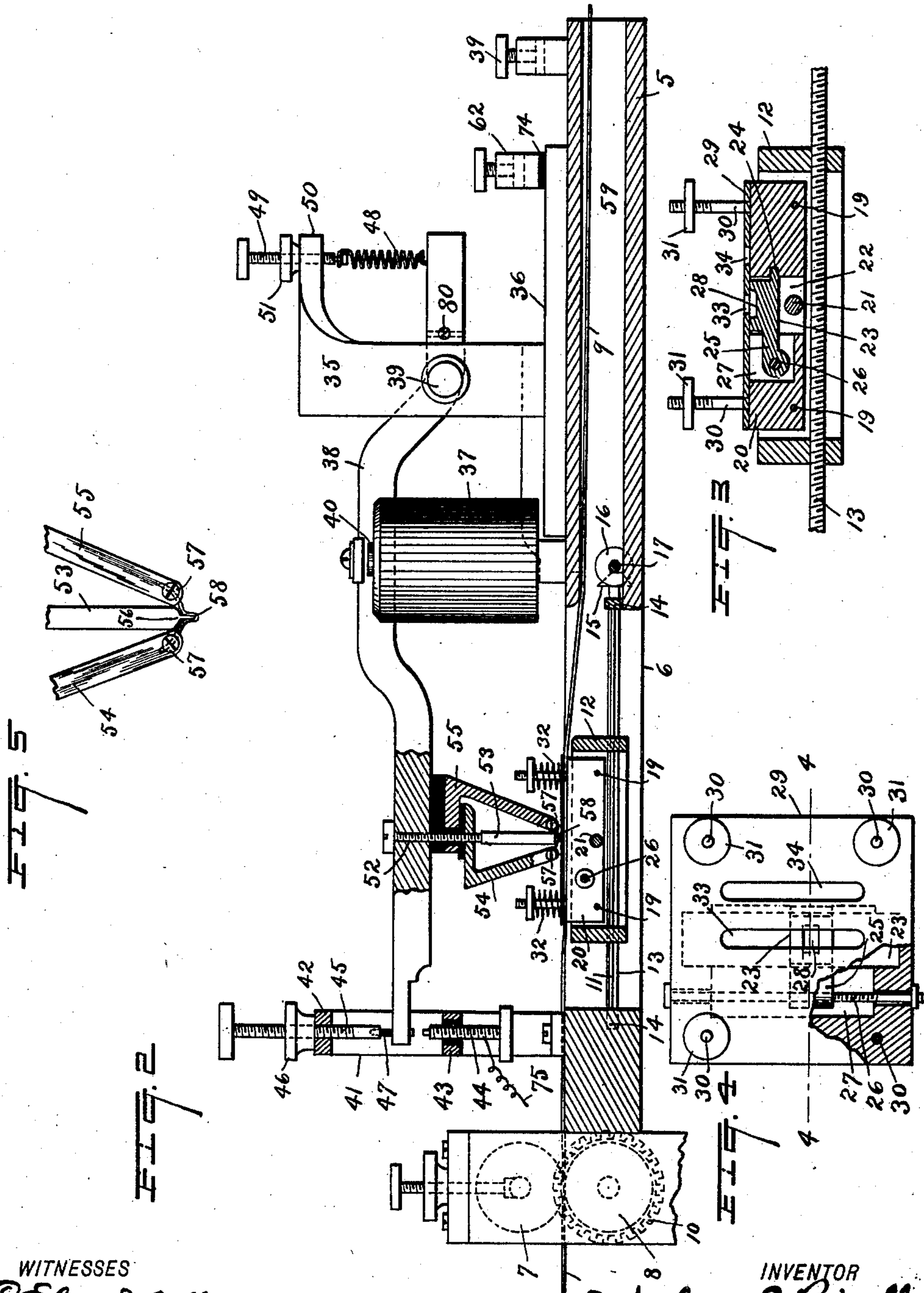
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UNITED STATES PATENT OFFICE.

AMBROSE S. BISSELL, OF NEW YORK, N. Y.

TELEGRAPHIC INSTRUMENT.

SPECIFICATION forming part of Letters Patent No. 670,980, dated April 2, 1901.

Application filed September 4, 1900. Serial No. 29,014. (No model.)

To all whom it may concern:

Be it known that I, AMBROSE S. BISSELL, 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 Telegraphic Instruments, of which the following is a full and complete specification, such as will enable those skilled in the art to which it appertains to make and use the same.

This invention relates to telegraphic instruments; and one object thereof is to provide an improved instrument of this class which employs a tape which in the act of receiving the message is perforated, so as to form the Morse telegraphic characters so that they may be read by sight, a further object being to provide an instrument of this class which will operate as a receiver and also as a transmitter or repeater of a message once received thereby, and a further object being to provide an instrument of the class described which is particularly designed for use as an instructor or teacher of telegraphy, but which may also be used for the purposes of a receiver in ordinary business.

The invention is fully disclosed in the following specification, of which the accompanying drawings form a part, in which the separate parts of my improvement are designated by the same reference characters in each of the views, and in which—

Figure 1 is a plan view of my improved telegraphic instrument; Fig. 2, a partial central vertical longitudinal section on the line 2 2 of Fig. 1; Fig. 3, a section through a detail of the construction on the same line as Fig. 2; Fig. 4, a plan view of a part of the construction shown in Fig. 3, and Fig. 5 a side view of another detail of the construction.

In the practice of my invention I provide a plate or support 5, which is provided adjacent to one end with a rectangular opening 6 and at the left-hand end thereof and near the opening 6 with two rollers 7 and 8, between which the tape 9, employed in my improved telegraphic instrument, is passed, said rollers being designed to feed the tape regularly and automatically during the operation of the instrument.

The roller 8 is provided at one end with a gear-wheel 10, which in practice operates

in connection with a clockwork mechanism mounted beneath and connected with the plate or support 5, but which forms no part of this invention, and is therefore not shown and described.

Extending longitudinally of the rectangular opening 6 are two rods 11, on which is mounted a slidable frame 12, and passing centrally through this frame and midway between the rods 11 is a screw-shaft 13, having bearings at 14, and one end of which is provided with a beveled gear 15, which operates in connection with a corresponding gear 16 on a shaft 17, mounted transversely of the plate or support 5 and provided at one end with a knob or head 18, by which it is operated, and by turning the shaft 17 by means of the knob or head 18 the screw-shaft 13 is also turned for the purpose of adjusting the frame 12 longitudinally of the plate or support 5.

The frame 12 is rectangular and oblong in form and is so arranged that the greatest length thereof extends transversely of the plate or support 5, and mounted therein, longitudinally thereof, are two rods 19, on which is mounted a supplemental frame or block 20, and a screw-shaft 21 is passed centrally through the supplemental frame or block transversely of the plate or support 5, and by means of this shaft the supplemental frame or block 20 may be adjusted transversely of said plate or support and transversely of the line of adjustment of the frame 12.

The supplemental frame or block 20 is provided centrally with a transverse space or opening 22, which extends transversely of the plate or support 5, and mounted therein is an adjustable block or device 23, provided at one side with a tongue 24, which fits in a corresponding groove formed in one side of the frame or block 20 and at the other side with an arm 25, mounted on a screw-shaft 26, passing longitudinally through a space or chamber 27 parallel with and communicating with the space or opening 22, and the block 23 may be adjusted in the space or opening 22 by means of the shaft 26, and said block is provided, centrally of the top thereof, with a slight depression 28.

Placed upon the supplemental frame or block 20 is a plate 29, which is held in posi-

tion by four corner-posts 30, each of which is screw-threaded at its upper end and provided with a nut 31, and placed on each of these posts, below the nut thereon, is a spring 32, and these springs serve to hold the plate 29 in position. The plate 29, which, together with the supplemental frame or block 20, is shown in Fig. 4, is provided with a central slot 33 and a supplemental parallel slot 34 at one side thereof, and these slots extend in said plate transversely of the plate or support 5 and of the rectangular opening 6 formed therein, and the central slot 33 is directly over the block 23 and over the depression 28, formed in the top thereof.

Mounted over the right-hand end of the plate or support 5 and preferably midway between the opening 6 and said end of said plate or support is a yoke-shaped support 35, secured to or mounted on a plate 36, and in front of said support are placed electromagnets 37, and pivoted in said support is an armature-arm 38, said pivotal connection being made at 39, and said arm is provided with an armature 40, which operates in connection with said magnets and is also extended longitudinally of the plate or support 5 over the opening 6 and into an upright bracket 41, provided with two transverse members 42 and 43, and the lower transverse member 43 is provided with a vertically-arranged screw 44 and the upper transverse member 42 with a similarly-arranged screw 45, provided with a set-nut 46, and the lower end of which at 47 is composed of insulating material and is adapted to bear on the end of the armature-arm 38, as is also the upper end of the screw 44.

The armature-arm 38 is provided at its right-hand end with a spiral spring 48, which is connected with a screw 49, passed through an arm 50 on the yoke-shaped support 35, and said screw is provided with a set-nut 51. The armature-arm is also provided midway between the electromagnets 37 and the upright bracket or support 41 with a vertically-arranged screw 52, with the lower end of which is connected in any desired manner an asbestos block or member 53, and said screw serves as a connection for two supports 54 and 55, each of which is angular in form and composed of two arms, one arm being longer than the other, and the screw 52 is passed through the shorter arm of each of said supports, and the longer arms thereof converge toward the lower end of the asbestos block or member 53, and the support 55 is insulated from the armature-arm and also from the screw 52, while the support 54 is in electrical connection with said screw and arm.

The lower end of the asbestos block or member 53 is formed as shown in Fig. 5, being tapered and pointed, as shown at 56, and connected with the lower converging ends of the supports 54 and 55, as shown at 57, is a platinum wire 58, said wire being passed below

and formed into a loop around the pointed end of the asbestos block or member 53.

The right-hand end of the plate or support 5 is preferably provided with a central chamber 59, which opens outwardly and also into the rectangular opening 6, and through this chamber the tape 9 in practice is passed, and directly over said end of the plate or support 5 are placed two binding-posts 60 and 61, and two similar binding-posts 62 and 63 are placed on the adjacent end of the plate 36. I also provide a battery 64, provided with circuit-wires 65 and 66, which are respectively connected with the binding-posts 60 and 61, and said binding-posts are connected with the magnets 37 by circuit-wires 67 and 68, and said magnets are connected by a wire 69, and placed in the circuit thus formed is a telegraphic key 70. I also preferably employ a supplemental circuit consisting of a battery 71, connected with the binding-posts 62 and 63 by wires 72 and 73, and the binding-post 62 is insulated, as shown at 74 in Fig. 2, and is connected with the screw 44 by a wire 75. Another circuit is also employed, comprising a battery 76, having wires 77 and 78, and the wire 77 is connected with an arm 79, formed on the upper horizontal member of the support 55, while the wire 78 is connected with the end of the armature-arm 38 at 80, and this circuit, formed by the battery 76, the wires 77 and 78, the armature-arm 55, and parts connected therewith, is intended for the purpose of heating the platinum wire 58, which is done for the purpose of burning the necessary dots and dashes of the Morse system in the tape 9 as the latter is drawn through the instrument.

The operation will be readily understood from the foregoing description, when taken in connection with the accompanying drawings, and the following statement thereof. The electrical impulses are received by the instrument, being transmitted thereto by means of the key 70 and the circuit-wire connected therewith in the usual manner, and at each operation of said key the armature 40 and armature-arm 38, with which said armature is connected, are operated, and the free end of the armature-arm is raised and lowered in the usual manner and as will be readily understood. During the entire time that the instrument is in operation the circuit formed by the wires 77 and 78 and parts connected therewith is closed and the platinum wire 58 is highly heated, and when the free end of the armature-arm is drawn down by the magnets 37 the said wire is pressed upon the tape 9 by the pointed end of the asbestos block or member 53, and the necessary dots and dashes are formed in said tape by the burning thereof by means of said platinum wire.

The tape 9 is preferably composed of very thin celluloid material, and by adjusting the frame 12 transversely of the plate or support 5 separate lines of perforations may be formed

in said tape, as will be readily understood, and in the operation of receiving a message the pointed end of the asbestos block or member 53 and the platinum wire connected therewith move downwardly through the central slot 33 in the plate 29, and the adjustable block 23 is designed for use in connection with said plate and directly beneath said slot when a very or unusually thin tape is employed, the object of this block being to prevent the tape from being forced too far downward through the slot 33 in the plate 29.

The tape 9 may consist of an endless strip, in which event in order to repeat the message or retransmit it said tape is continuously fed through the instrument after the message has been received, and in this case or when the instrument is used as a repeater or transmitter the heating-circuit is opened, as is also the transmitting-circuit formed by the battery 64 and the wires 65 and 66 and parts connected therewith, and the transmitting or repeating circuit formed by the battery 71, the wires 72 and 73, and parts with which said wires connect is closed, and as the tape passes through the instrument the armature-arm is operated by the rise and fall occasioned by the pointed end of the asbestos block or member 53 passing into and out of the dots and dashes previously formed in the tape by the reception of the message, it being understood that the transmitting or repeating circuit is in practice provided with a sounder by means of which the message when transmitted or repeated may be read by sound in the usual manner.

In using the instrument as a transmitter or repeater the screw 49 is adjusted so as to pull on the spring 48 and the magnets 37 are not in operation and the screw 44 is also properly adjusted with relation to the free end of the armature-arm, and in this operation of repeating or transmitting the supplemental frame or block 20 is adjusted transversely of the plate or support 5, so that the lower end of the asbestos block or member 53 and the platinum wire connected therewith pass through the supplemental slot 34 in the plate 29, and the downward movement of said parts is limited by the said supplemental frame or block 20, which is directly beneath said slot, as shown in Fig. 3.

It will thus be seen that I accomplish the object of my invention by means of a device simple in construction and operation, and it will be apparent that my invention is not limited to the method of wiring the circuits herein shown and described, as any suitable circuit or circuits may be employed, the only thing necessary in this connection being to provide a heating-circuit for the perforator and a circuit or circuits for receiving and transmitting or repeating a message, and the repeating-circuit herein shown and described may be entirely omitted, if desired, and the wires 65 and 66 may be detached from the binding-posts 60 and 61 when repeating or

transmitting a message and connected with the posts 62 and 63, the wire 75 being employed in this event, as hereinbefore described. It will also be apparent that many other changes in and modifications of the construction herein described may be made without departing from the spirit of my invention or sacrificing its advantages, and I reserve the right to make all such alterations therein as fairly come within the scope of my invention.

Having fully described my invention, I claim as new and desire to secure by Letters Patent—

1. In an electrical instrument of the class described, a base-support, a tape which is adapted to be fed automatically through the instrument, magnets supported above said base-support, an armature-arm pivotally supported adjacent thereto, a frame mounted beneath the free end of said arm and adapted to be adjusted longitudinally and transversely of the base-support, and over which the tape is passed, said frame being provided with a plate having slots, and a pointed device connected with said armature-arm and adapted to be depressed by the electric impulses, onto said tape, and an independent circuit for heating said pointed device, substantially as shown and described.

2. In an electrical instrument of the class described, a base provided with an opening, a frame mounted in said opening, and longitudinally adjustable, a supplemental frame mounted in the first-named frame and transversely adjustable, a plate mounted on the supplemental frame and provided with transverse slots, a tape adapted to be automatically fed through the instrument over said plate, and means for perforating said tape, substantially as shown and described.

3. An electrical instrument of the class described, comprising a base, means for feeding a tape therethrough, a frame mounted in said base and longitudinally adjustable therein, and provided with an adjustable support, a slotted plate mounted on said adjustable support, a magnet mounted on said base, a pivoted armature-arm operating in connection therewith, and devices in connection with said arm for burning the dots and dashes in said tape, said device being in an independent heating-circuit, substantially as shown and described.

4. A telegraphic receiver, comprising a base having an opening formed therein, a slotted plate provided with a longitudinally and transversely adjustable support mounted in said opening, a magnet mounted on said base, an armature-arm pivotally supported adjacent thereto, a circuit for actuating said magnets and said arm, and devices connected with said arm for burning dots and dashes in said tape, said devices being in an independent heating-circuit, substantially as shown and described.

5. In an electrical instrument of the class

described, a base provided with an opening, a support mounted in said opening and longitudinally and transversely adjustable thereof, a plate mounted on said support, and provided with two slots arranged transversely of the base, and one of which is over an open space in said support, an adjustable block mounted in said space beneath said slot, means for feeding a tape through the instrument over said slot, a pivotally-supported armature-arm, and means for operating the same, and devices connected with said arm and operating in connection with the tape over said slot to form dots and dashes in said tape, substantially as shown and described.

6. A telegraphic instrument of the class described, comprising a base provided with a longitudinally and transversely adjustable support, a slotted plate mounted thereon, a tape adapted to be fed through the instrument over said plate, a vertically-movable armature-arm, and means for operating the same, and devices connected with said arm for forming dots and dashes in said tape, substantially as shown and described.

7. A telegraphic instrument of the class described, comprising a base provided with a longitudinally and transversely adjustable support, a slotted plate mounted thereon, a tape adapted to be fed through the instrument over said plate, a vertically-movable armature-arm, and means for operating the same, and devices connected with said arm for forming dots and dashes in said tape, said device being in an independent heating-circuit, substantially as shown and described.

8. A telegraphic instrument of the class described, comprising a base provided with a longitudinally and transversely adjustable support, a slotted plate mounted thereon, a tape adapted to be fed through the instrument over said plate, a vertically-movable armature-arm, and means for operating the same, and devices connected with said arm for forming dots and dashes in said tape, said device being in an independent heating-circuit, and said armature-arm being provided at one end with a spring in operative connection with a vertically-arranged screw mounted thereover, and the opposite end thereof being passed into a support which is provided with two vertically-arranged screws, one arranged thereover and the other thereunder, and the upper screw being provided at its lower end with insulating material, substantially as shown and described.

9. An electrical instrument of the class described, comprising a base, a support mounted therein and longitudinally and transversely adjustable thereof, a slotted plate mounted on said support, a vertically-movable armature-arm mounted over said support, means for operating said arm, a tape adapted to be longitudinally fed through said instrument, and devices connected with said arm for perforating said tape, substantially as shown and described.

10. An electrical instrument of the class described, comprising a base, a support mounted therein and longitudinally and transversely adjustable thereof, a slotted plate mounted on said support, a vertically-movable armature-arm mounted over said support, means for operating said arm, a tape adapted to be longitudinally fed through said instrument, and devices connected with said arm for perforating said tape, and means for operating said arm, substantially as shown and described.

11. An electrical instrument of the class described, comprising a base, a support mounted in connection with said base and longitudinally and transversely adjustable thereof, magnets mounted on said base, an armature-arm pivotally supported adjacent to said magnets, a tape adapted to be fed through said instrument over said support, and devices connected with said armature-arm for forming dots and dashes in said tape, said device being in an independent heating-circuit, and means for operating said armature-arm, substantially as shown and described.

12. An electrical instrument of the class described, comprising a base, a support mounted therein and longitudinally and transversely adjustable thereof, a plate mounted on said support and provided with a plurality of slots, one of which is over a chamber or recess in said support, a tape adapted to be fed through the instrument over said support, magnets mounted on said base, an armature-arm pivotally supported longitudinally of the base and adapted to be operated by said magnets, and devices connected with said arm for forming dots and dashes in said tape, substantially as shown and described.

13. An electrical instrument of the class described, comprising a base, a support mounted therein and longitudinally and transversely adjustable thereof, a plate mounted on said support and provided with a plurality of slots, one of which is over a chamber or recess in said support, a tape adapted to be fed through the instrument over said support, magnets mounted on said base, an armature-arm pivotally supported longitudinally of the base and adapted to be operated by said magnets, and devices connected with said arm for forming dots and dashes in said tape, the pivoted end of said armature-arm being provided with a spring connection, and the opposite ends thereof being provided with regulating-screws, one of which is provided with an insulated end, substantially as shown and described.

14. In an electrical instrument of the class described, a base, a support mounted therein and longitudinally and transversely adjustable thereof, said support being provided with a plate having two slots, one of which is over a chamber or recess formed in said support, a block mounted in said chamber or recess beneath said slot and longitudinally adjustable thereof, a pivoted armature-arm

mounted over said base, and devices for operating the same, said arm being also provided with perforating devices adapted to be operated by heat for forming dots and dashes
5 in a tape passed through the instrument over said support, substantially as shown and described.

15. In an electrical instrument of the class described, a base, a support mounted therein and longitudinally and transversely adjustable thereof, said support being provided with a plate having two slots, one of which is over a chamber or recess formed in said support, a block mounted in said chamber or recess
15 beneath said slot and longitudinally adjustable thereof, a pivoted armature-arm

mounted over said base, and devices for operating the same, said arm being also provided with perforating devices adapted to be operated by heat for forming dots and dashes
20 in a tape passed through the instrument over said support, said armature-arm being adapted to be operated, substantially as shown and described.

In testimony that I claim the foregoing as
my invention I have signed my name, in presence of the subscribing witnesses, this 30th day of August, 1900.

AMBROSE S. BISSELL.

Witnesses:

F. A. STEWART,
C. C. OLSEN.