

No. 842,154.

PATENTED JAN. 22, 1907.

H. G. MARTIN.
TELEGRAPH TRANSMITTER.
APPLICATION FILED APR. 16, 1906.

Fig. 1

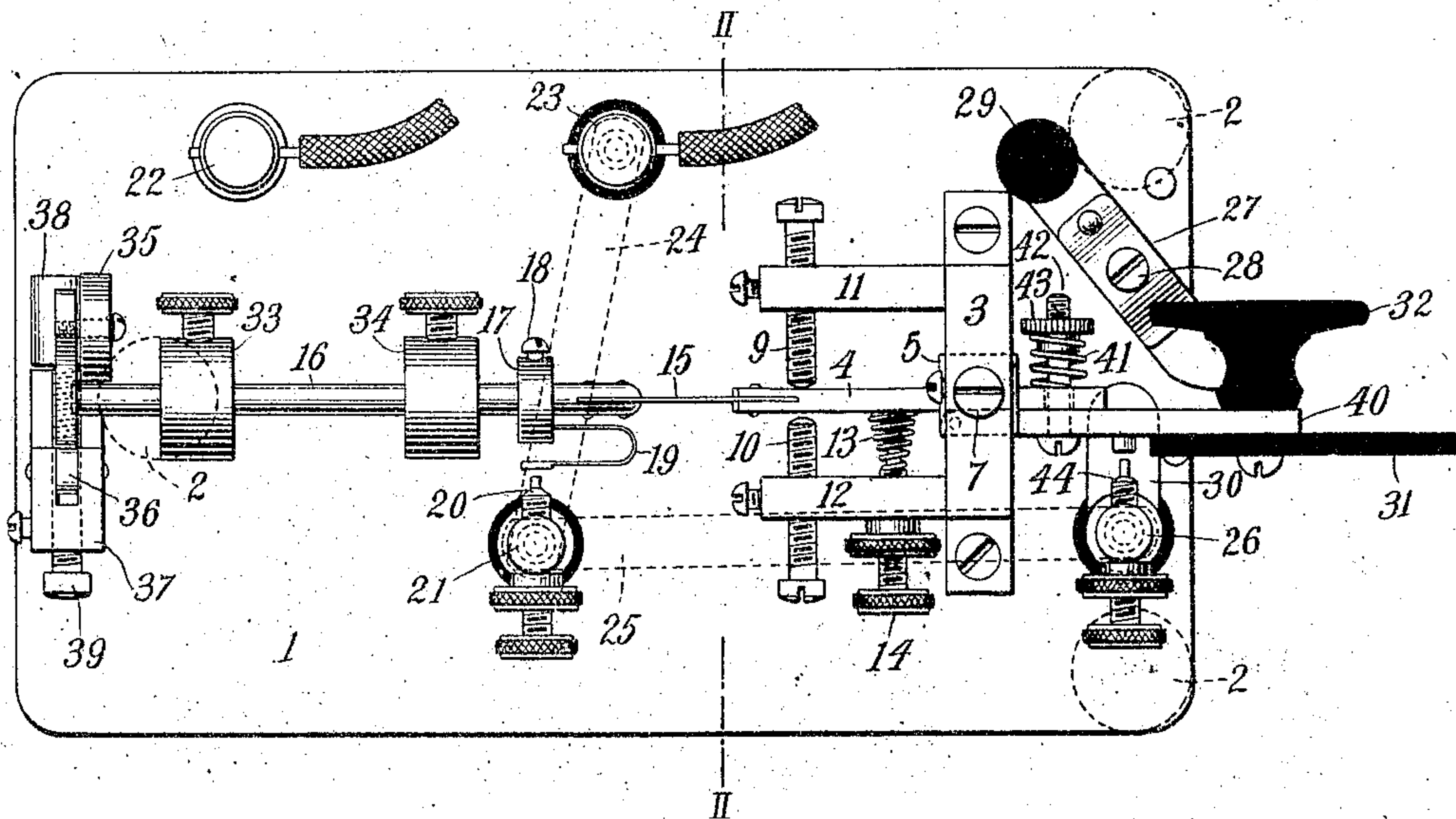


Fig. 2

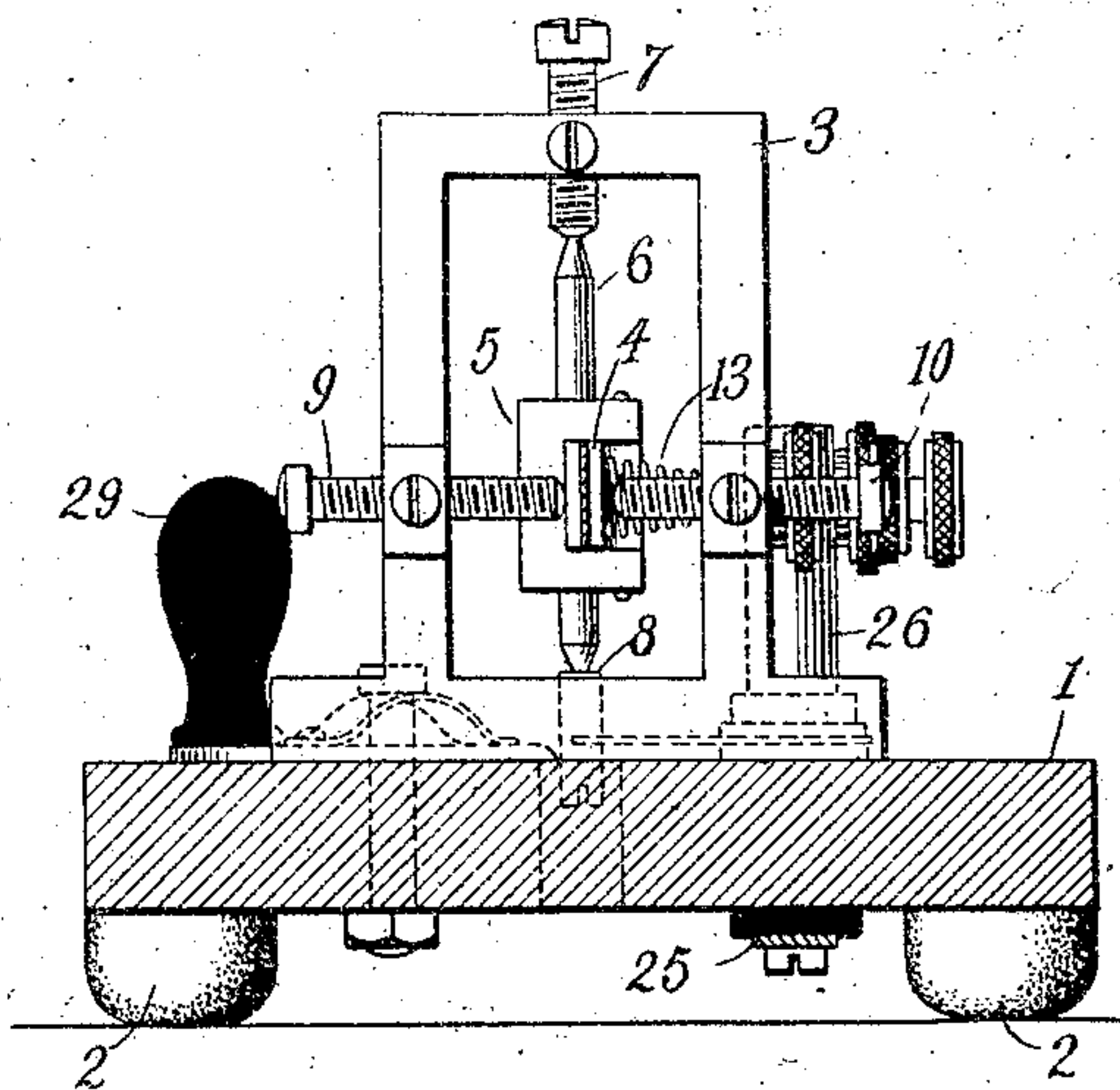
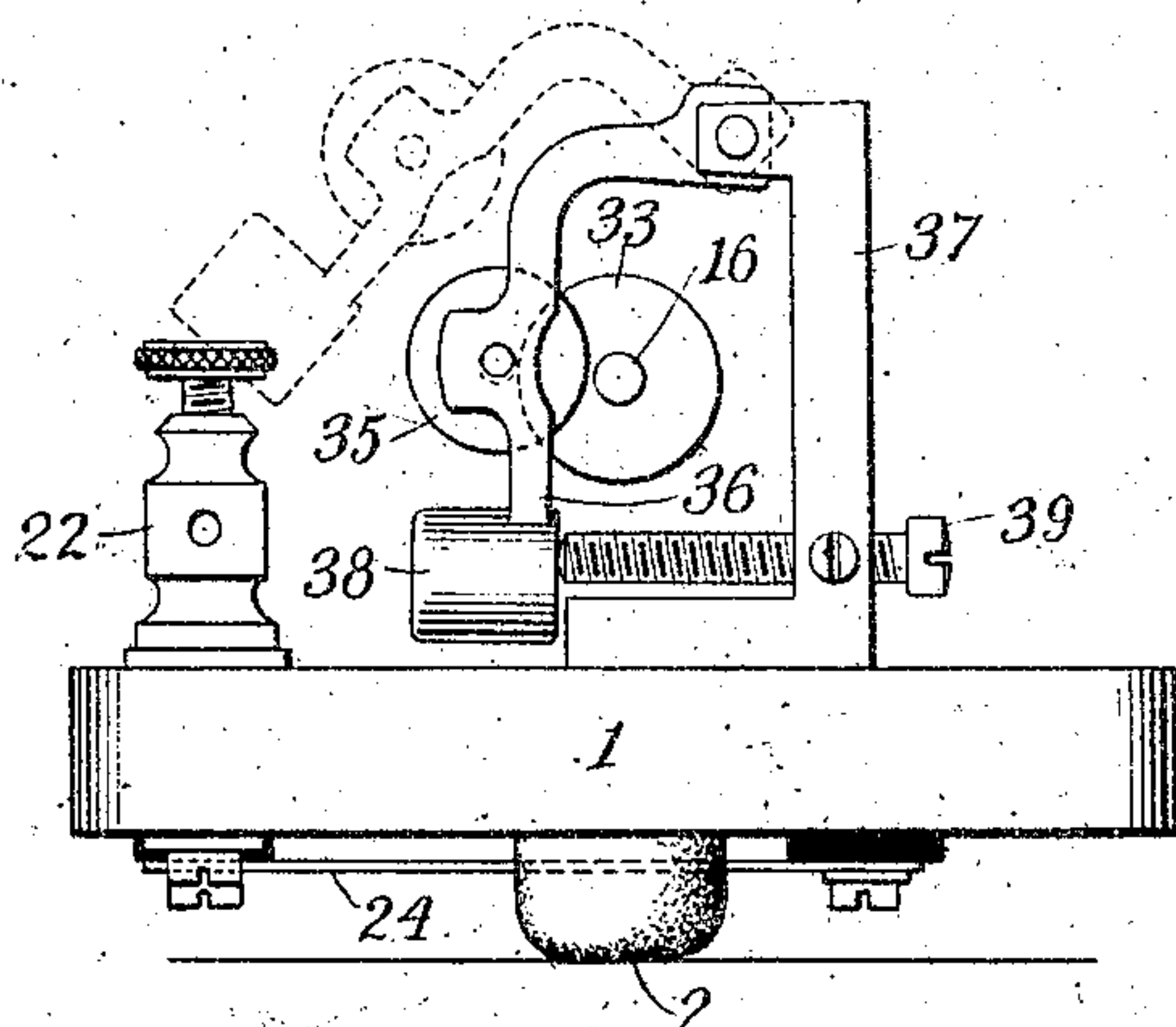


Fig. 3



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TELEGRAPH-TRANSMITTER.

No. 842,154.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, HORACE G. MARTIN, a citizen of the United States, residing at New York, in the county of Kings and State of New York, have invented certain new and useful Improvements in Telegraphic Transmitters, of which the following is a specification, reference being had to the drawings accompanying and forming part of the same.

In my prior patent, No. 767,303, dated August 9, 1904, I have described and claimed a telegraphic transmitter, the essential features of which are a key, a vibrator, and suitable electrical connections, by means of which the movement of the key in one direction closes the circuit continuously to the line, while a movement of the key in the opposite direction closes the line-circuit through the vibrator, which operates to send a succession of impulses as long as the key remains in such position. The first movement of the key is used to send dashes while the second movement sends dots. The lengths of the spaces and dashes are thus determined directly by the operator, likewise the number of dots, which continue to be sent as long as the key is held in the proper position; but the length of the impulses which produce the dots and their rapidity are determined by the adjustment or regulation of the period of vibration of the vibrator. The transmitter just described lessens the number of manual movements required in Morse sending, and hence greatly reduces the labor involved.

The present invention operates on the same general principle as the above, but involves certain features of construction and arrangement which materially improve the apparatus, more particularly in respect to simplicity, compactness, and durability.

The invention will be better understood by reference to the annexed drawings, in which is illustrated the preferred embodiment, wherein—

Figure 1 is a plan view of the transmitter. Fig. 2 is a section on line II II, and Fig. 3 is an end view.

The apparatus is conveniently mounted on a base 1, which may be of iron or other suitable material provided with insulating-feet 2. At one end of the base and in electrical connection therewith is a frame or standard 3. Through this frame extends a key-lever 4, carried by a yoke 5, which is in turn mounted on a vertical pivot 6, working in upper and lower bearing-screws 7 8, respectively, so that

the key-lever can be shifted in either direction horizontally between screw-stops 9 10, carried by arms 11 12, extending from the sides of the frame or standard 3. The key-lever is normally held in contact with the stop 9 by a spring 13, which bears also against a screw 14, working in the arm 12, so that the tension of the spring can be readily adjusted.

Carried by the key-lever in line therewith by means of an intermediate flat spring 15 is a vibrator or pendulum 16, which carries at a point near the spring 15 a collar 17, adjustable longitudinally on the pendulum and secured in adjusted position by a set-screw 18. Carried by the collar is a light U-shaped spring-contact 19, the free end of which when the key-lever is in its normal position lies opposite but spaced slightly from a stationary contact 20 in the form of a screw working in a post 21, so that the said stationary contact can be adjusted at will toward or from the spring-contact.

The external circuit is connected to binding-posts 22 23, the former of which is in electrical connection with the base, and hence the key-lever 4 and spring-contact 19 through the standard 3 and pivot 6, while the latter binding-post is connected by a conductor 24 with the insulated post 21, carrying the stationary contact 20. This post is connected by a conductor 25 with another insulated post 26. Inasmuch as the instrument is used on a normally closed circuit the post 26 may be connected at will with the base by a switch 27, pivoted to the base by a screw 28 and having on one end an operating-knob 29, while the other end is adapted to slip under and in close contact with a clip 30, extending from the post 26.

The operation of the instrument will now be readily understood. If the key-lever be grasped by the thumb and finger pieces 31 32 and swung away from the stop 9, it will be checked suddenly by striking the stop 10. The inertia of the vibrator 16 will, however, cause the same to swing farther against the tension of the flat spring 15 and bring the contact-spring 19 against the stationary contact 20. The inertia of the vibrator having been overcome the latter is thrown back, flexing the spring 15 backward until the momentum of the vibrator in this direction is overcome, whereupon the vibrator flies forward again and brings the spring 19 again into contact with the screw 20. This movement of the vibrator back and forth is kept up for

a considerable time, as long as the key-lever remains against stop 10, at a rate determined by the positions of the adjustable bobs or weights 33 34 on the vibrator. Hence if the switch 27 is open the rapid make and break of the circuit at contacts 19 and 20 will send a succession of short impulses or dots over the line to the distant receiving instruments. When the desired number of dots have been sent, the operator throws the key-lever back to its initial position, thus carrying the vibrator too far from the contact 20 for the spring 19 to strike the latter. When in this position the oscillations of the vibrator are checked and the vibrator soon brought to rest by the latter striking a dampening-weight 35 in the form of a button or disk loosely supported in the path of the vibrator by an arm 36, depending from and pivoted to a support 37. The lower end of the arm carries a weight 38 to maintain it in its depending position, which is determined by a screw-stop 39, extending through the support 37 and against the weight 38.

For the purpose of sending long impulses of current corresponding to dashes the key-lever is made in two parts, the outer of which, 40, carries at its outer end the finger and thumb pieces 32 31. At its inner end the part 40 is pivoted to the yoke 5, but yieldingly held flat against the main part of the lever by a coil-spring 41, surrounding a screw 42, which projects from the part 40 through the main part of the key-lever. The spring bears at one end against the said main part and at its other end against an adjusting-nut 43, by which the tension of the spring can be readily adjusted. It is clear that when the part 40 is moved to the right by the operator the key-lever will act as a unit or as one piece and will be checked by the stop 10, as above described. When, however, the member 40 is moved to the left, the main part of the key-lever is simply pressed against the stop 9 and cannot move. Hence the member 40 will swing on its pivot against the tension of spring 41, independently of the rest of the key-lever and will strike the end of an adjustable screw-contact 44, carried by the post 26. The circuit is thus closed independently of the dot-contacts 19 20 and will continue closed as long as the member 40 is kept against the contact 44, thus sending a prolonged impulse or dash of corresponding duration. To make a space, the key-lever is simply held in its initial position, as shown in Fig. 1, for the necessary length of time.

From the foregoing it will be seen that while the sending of dots, dashes, and spaces is under the control of the operator in the actual making of the dots, which is the most fatiguing part of the operator's work with the ordinary Morse key, my device is in a sense automatic. This result is in general the same as that attained by the instrument

shown in my prior patent mentioned above. In the present form, however, the vibrator is carried and actuated by the key-lever, while the two movements of the Key-lever in my earlier device are here secured by making the lever in two parts, as described, which makes the lever flexible, as it were. This construction is simple, positive, and certain in operation and produces an instrument pleasing in appearance and easy to operate. It is clear, of course, that the form herein specifically illustrated is merely one of the numerous embodiments of which the invention is capable.

What I claim is—

1. In a telegraphic transmitter, the combination of a key-lever, a vibrator carried and actuated by the key-lever, and a pair of contacts constituting terminals of an electric circuit, one of said contacts being carried by the vibrator and the other being in position to be engaged by the first, as set forth.

2. In a telegraphic transmitter, the combination of a key-lever, a vibrator, a spring between the key-lever and the vibrator whereby the latter may be set in vibration by the key-lever, and a pair of contacts constituting terminals of an electric circuit, one of said contacts being carried by the vibrator and the other being located in position to be engaged by the first, as set forth.

3. In a telegraphic transmitter, the combination of a key-lever, a vibrator carried and actuated by the key-lever, a pair of contacts constituting terminals of an electric circuit, one of said contacts being carried by the vibrator and the other being located in position to be engaged by the first, and means for making and breaking the circuit independently of the vibrator, as set forth.

4. In a telegraphic transmitter, the combination of a key-lever, a vibrator carried by the key-lever and adapted to be set in vibration by movement of the key-lever from its normal position, a pair of contacts constituting terminals of an electric circuit, one of said contacts being carried by the vibrator and the other being located in the path of the first, and means for checking the movement of the vibrator when the key-lever is in its normal position, as set forth.

5. In a telegraphic transmitter, the combination of a key-lever, a pair of stops on opposite sides of the key-lever, a spring holding the key-lever yieldingly against one of said stops, a spring-supported vibrator carried by the key-lever, and a pair of contacts constituting terminals of an electric circuit, one of said contacts being carried by the vibrator and the other being located in the path of the first, as set forth.

6. In a telegraphic transmitter, the combination of a two-part key-lever adapted to be moved as a unit in one direction, part of said key-lever being adapted to be moved

independently in the other direction, a vibrator carried by the key-lever and adapted to be set in vibration by the movement of the key-lever as a unit, a pair of contacts constituting terminals of an electric circuit, one of said contacts being carried by the vibrator and the other being located in the path of the first, and means actuated by the independently-movable part of the key-lever for making and breaking the circuit independently of the vibrator, as set forth.

7. In a telegraphic transmitter, the combination of a two-part key-lever movable as a unit in one direction, part of the key-lever being movable independently in the other direction, a stop to limit the movement of the key-lever as a unit, a spring-supported vibrator carried by the key-lever, whereby the vibrator will be set in vibration when the key-lever strikes the said stop, a pair of contacts constituting terminals of an electric circuit, one of said contacts being carried by the vibrator and the other being located in the path of the first, and means actuated by the independently-movable part of the key-lever for making and breaking the circuit independently of the vibrator, as set forth.

8. In a telegraphic transmitter, the combination of a key-lever consisting of two parts pivoted together and yieldingly held to move as a unit in one direction, a stop limiting the movement of the key-lever in one direction, whereby part of the key-lever may be moved independently in the other direction, a vibrator carried by the key-lever and adapted to be set in vibration by the movement of the key-lever as a unit, a pair of contacts constituting terminals of an electric circuit, one of said contacts being carried by the vibrator and the other being located in the path of the first, and means actuated by the independently-movable part of the key-lever to make and break the circuit independently of the vibrator, as set forth.

9. In a telegraphic transmitter, the combination of a key-lever, a pair of stops between which the key-lever is movable, a vibrator spring-supported by and in line with the key-lever, and a pair of contacts constituting terminals of an electric circuit, one of said contacts being carried by the vibrator and the other being located in the path of the first, as set forth.

10. In a telegraphic transmitter, the combination of a key-lever, a stop against which the key-lever is yieldingly held, a second stop limiting the movement of the key-lever away from the first stop, a vibrator spring-supported by the key-lever, adapted when vibrating to make and break an electric circuit, and means for checking the movement of the vibrator when the key-lever is resting against the first-mentioned stop, as set forth.

11. In a telegraphic transmitter, the combination of a key-lever, a stop for limiting the movement of the key-lever, a spring projecting from one end of the key-lever, and a vibrator carried by the spring and in line with the key-lever, adapted when vibrating to make and break an electric circuit, as set forth.

12. In a telegraphic transmitter, the combination of a key-lever, a stop for limiting the movement of the key-lever from its normal position, a vibrator spring-supported on the key-lever, whereby throwing the latter against its stop will set the vibrator in motion, means whereby the movement of the vibrator will make and break an electric circuit, and a dampener for checking the vibrator consisting of a weight loosely supported in position to be struck by the vibrator when the key-lever is in its normal position, as set forth.

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Witnesses:

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