

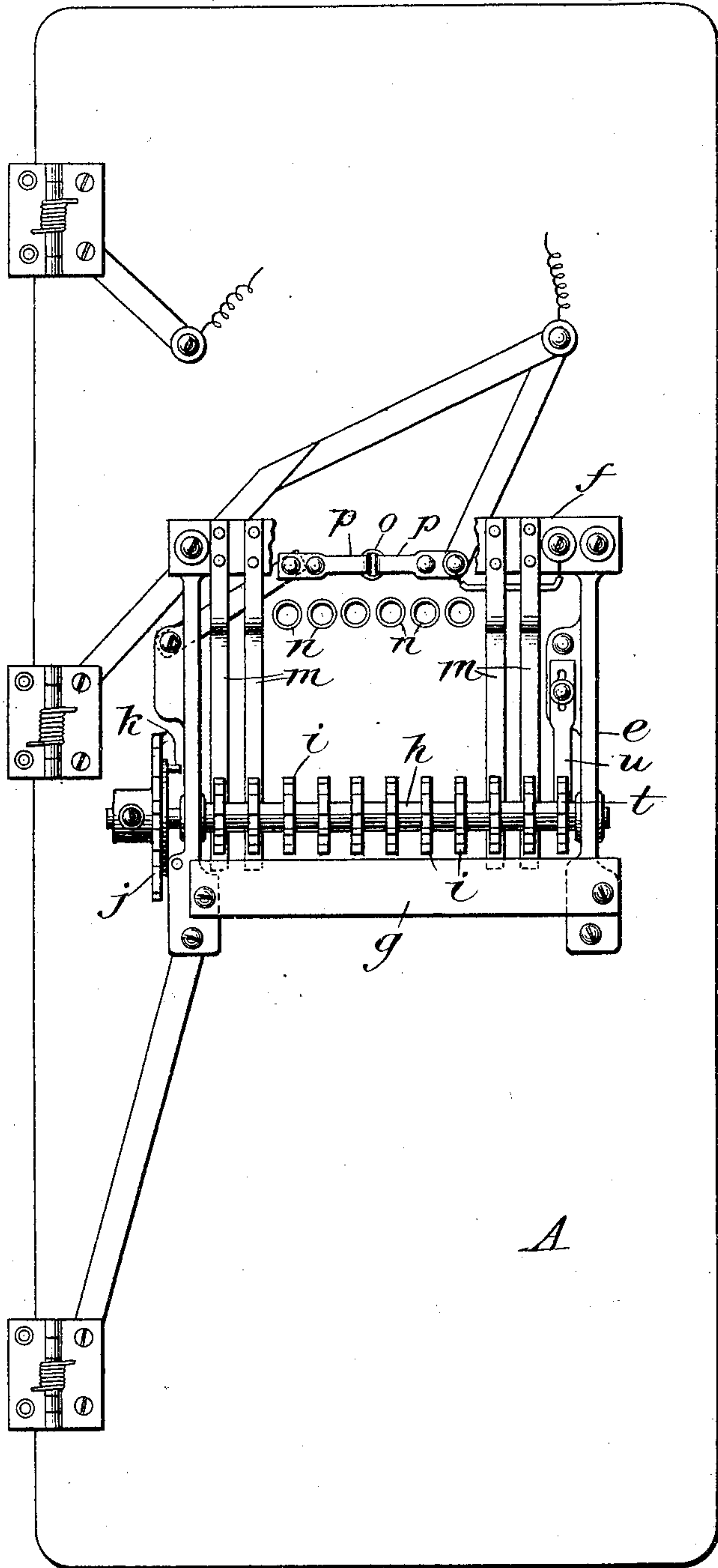
No. 789,748.

PATENTED MAY 16, 1905.

C. T. MASON.
CODE SIGNALING TELEPHONE.
APPLICATION FILED FEB. 11, 1905.

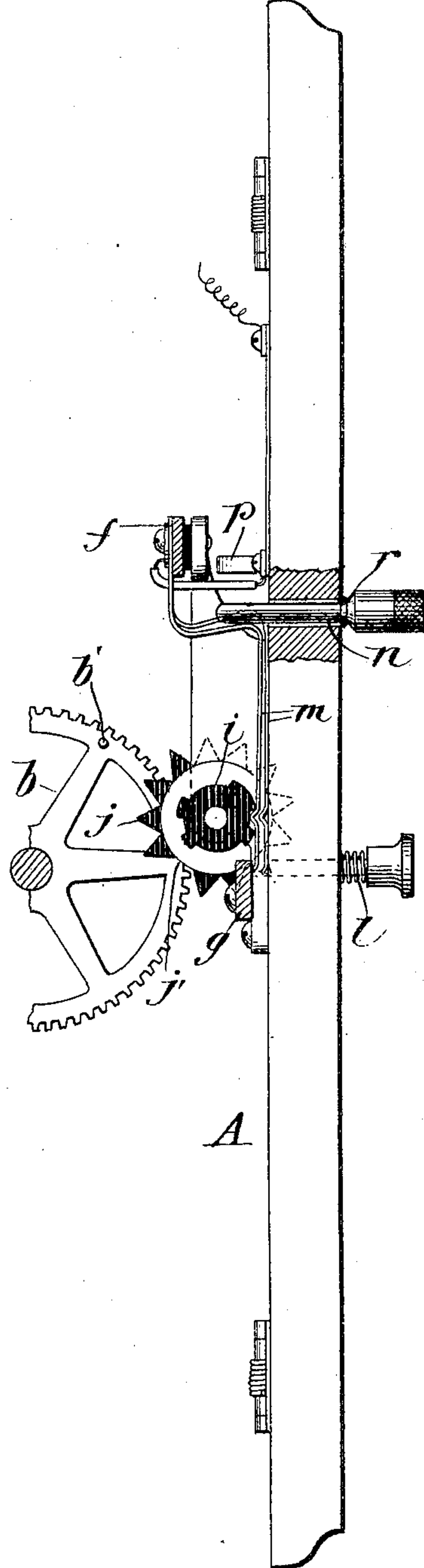
2 SHEETS—SHEET 1.

Fig. 1.



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Fig. 2.



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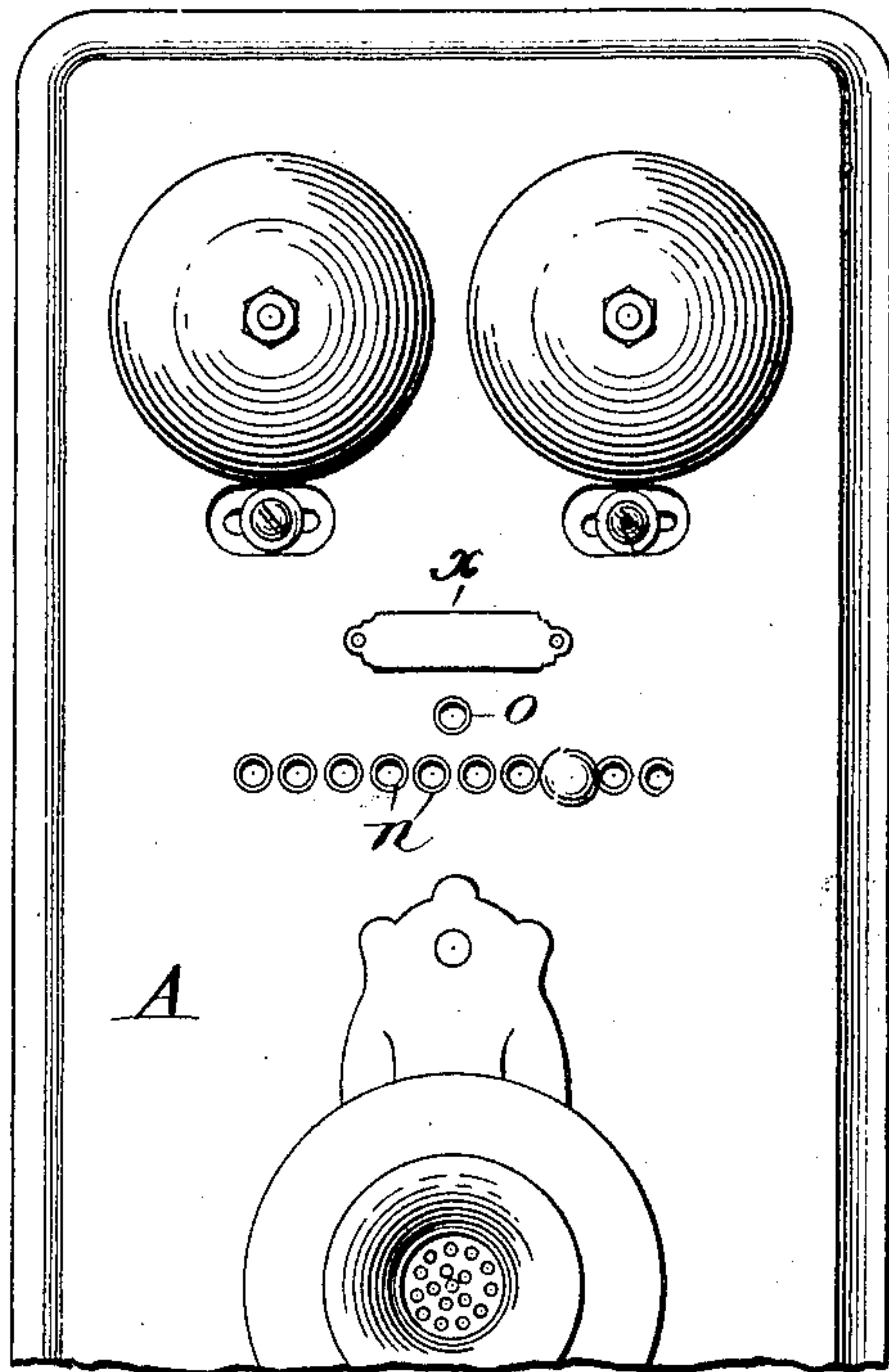
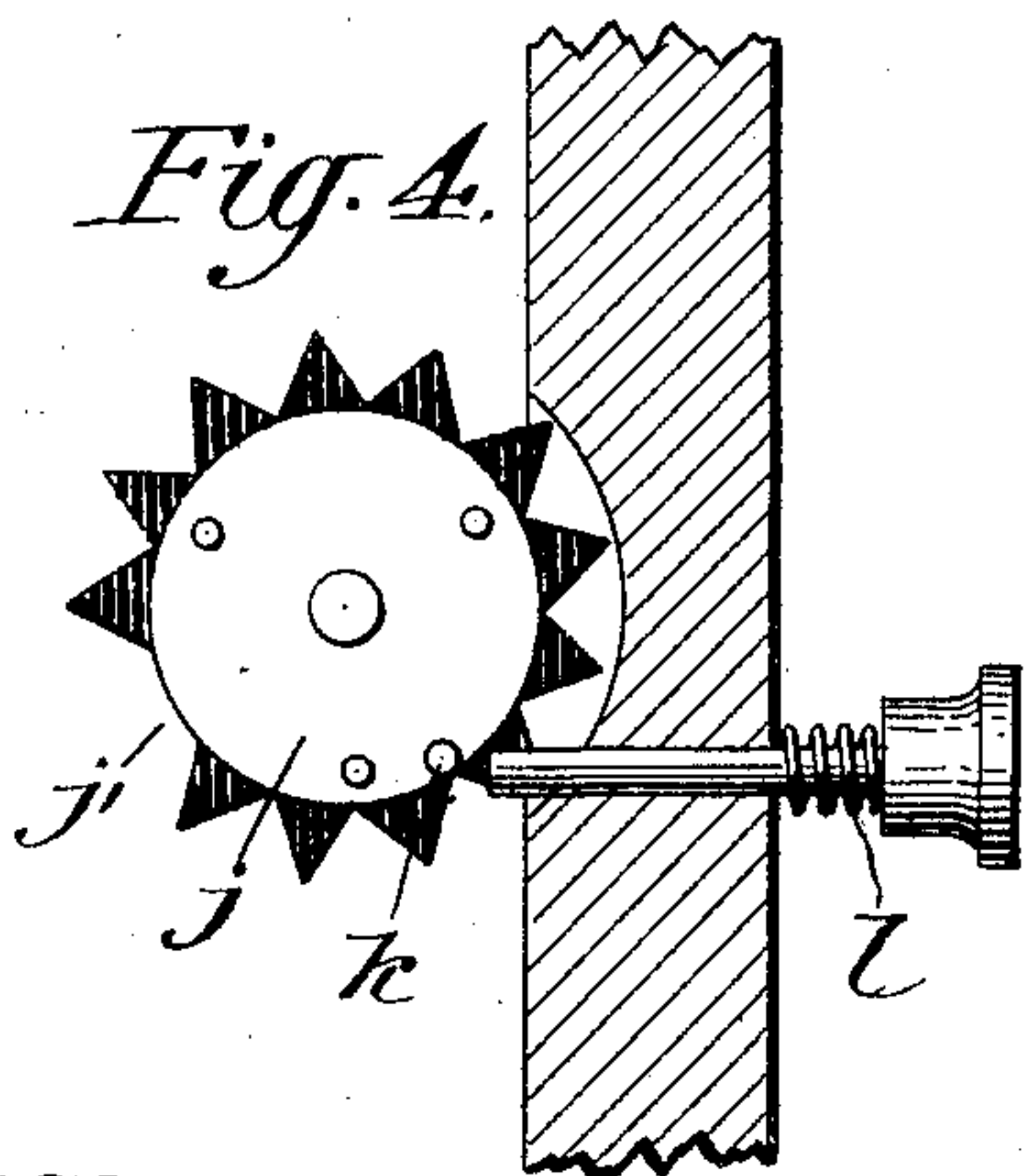
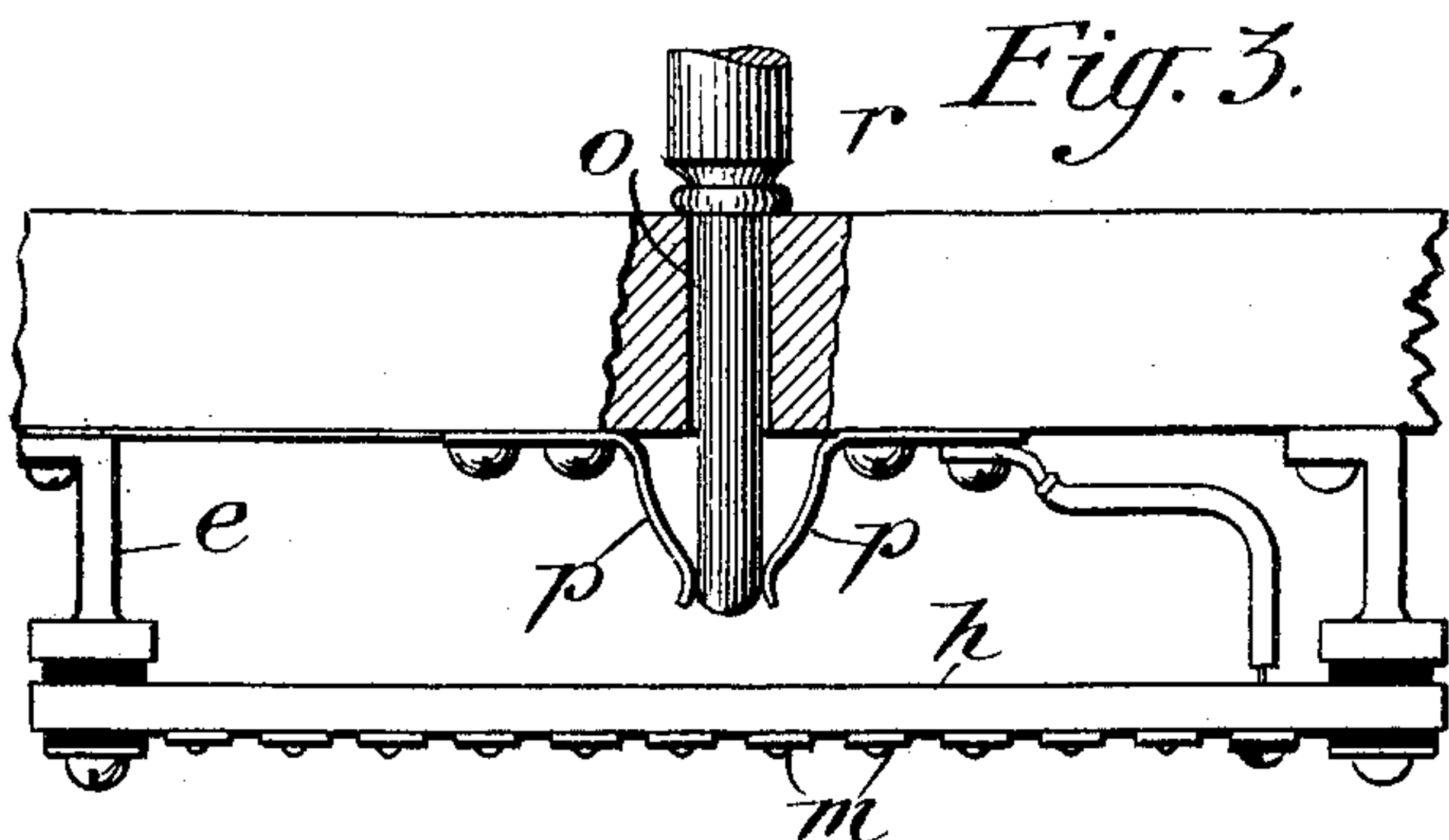
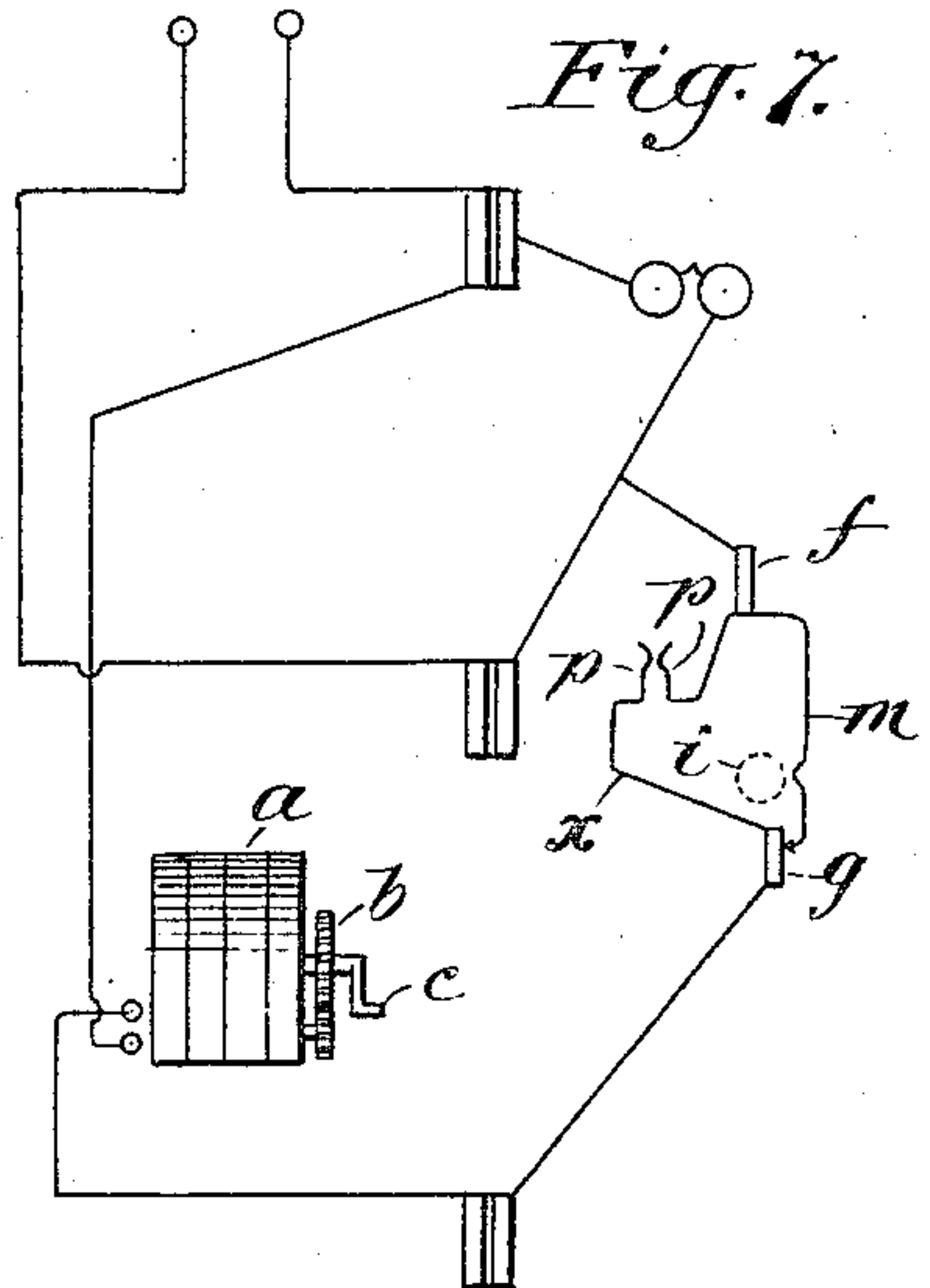
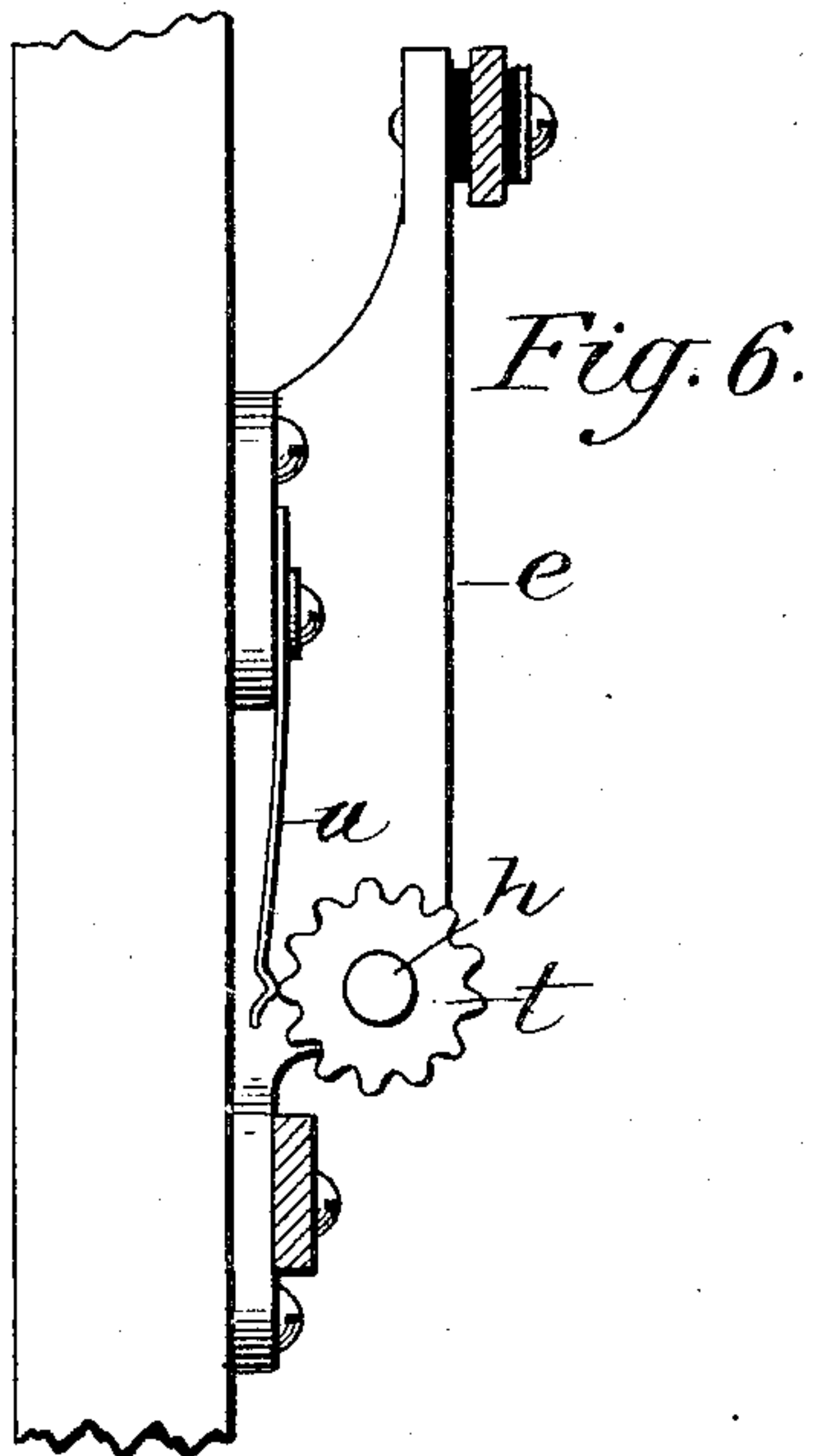
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

CHARLES T. MASON, OF SUMTER, SOUTH CAROLINA, ASSIGNOR TO THE SUMTER TELEPHONE MANUFACTURING COMPANY, OF SUMTER, SOUTH CAROLINA, A CORPORATION OF SOUTH CAROLINA.

CODE-SIGNALING TELEPHONE.

SPECIFICATION forming part of Letters Patent No. 789,748, dated May 16, 1905.

Application filed February 11, 1905. Serial No. 245,226.

To all whom it may concern:

Be it known that I, CHARLES T. MASON, a citizen of the United States, residing at Sumter, county of Sumter, South Carolina, have
5 invented certain new and useful Improvements in Code-Signaling Telephones; 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
10 which it appertains to make and use the same.

The invention relates to code-signaling call apparatus for telephone party-lines; and it consists in the various details of construction and combination of parts set forth in the fol-
15 lowing description and the claims appended thereto.

In the accompanying drawings, Figure 1 illustrates in elevation the rear side of the door of a telephone wall set having the im-
20 proved code-signaling apparatus applied thereto. Fig. 2 is a side elevation thereof, also showing the master-wheel for operating the magneto-generator and the signal-wheel shaft. Fig. 3 is a horizontal plan view of the
25 central portion of the same, showing the shunting jack and plug. Fig. 4 is a fragmentary vertical section showing the star-wheel and the means for advancing the same into operative engagement with its driving means.
30 Fig. 5 is a front elevation of the wall set. Fig. 6 is a fragmentary side elevation showing the spacer-disk. Fig. 7 is a diagrammatic illustration of the circuit connections of the generator and the code-signaling ap-
35 paratus.

Referring to the drawings, A indicates the usual box or casing of a telephone wall set, within which is mounted the magneto-gen-
40 erator *a*, provided with the regular bridging shunt. Mounted on the inside of the door of the box or casing is a frame *e*, comprising two side brackets or supports connected by two conductors or "bus-bars" *f* and *g*, the former of which is insulated from the rest of the
45 frame. Secured to the bar *f* is a series of conductor-springs *m*, each of which has a lateral bend intermediate its ends, so as to bring the lower end of each of said springs opposite the

lower bar *g*, with which each of the spring ends are adapted to be brought into engage-
50 ment to complete the generator-circuit, as shown in Figs. 1 and 2. In the door of the box A and opposite the contact-springs *m* is a series of sockets *n*, each socket adapted to
55 receive a plug *r*, the inner end of which engages the bend in corresponding spring *m* and forces the lower end of said spring into engagement with bar *g*, as illustrated in Fig. 2.

Mounted in bearings in the side supports of frame *e* is a transverse shaft *h*, having se-
60 cured therein a series of signal wheels or disks *i*, each of which coöperates with a corresponding contact-spring *m*—that is to say, each wheel has a series of teeth on its periphery corresponding to the breaks or intervals be-
65 tween the signal impulses to be transmitted, which teeth engage the contact-spring and force the same out of engagement with the bar *g* as said wheel is rotated. The signal-wheel shaft is driven from the same mechan-
70 ism that operates the magneto-generator, and to effect this operation there is mounted upon the end of the signal-wheel shaft a star-wheel *j*, which when the door of the box A is closed is brought into position to be engaged
75 by a pin *b'* on the master-wheel *b* of the generator driving-gear, so that each revolution of the master-wheel *b* to operate the generator causes pin *b'* to advance the star-wheel one tooth. In order to insure that the signal shall
80 be properly begun and finished, one tooth of the star-wheel is omitted, as at *j'*, so that after the star-wheel has been rotated to send the desired signal it is automatically disconnected from the driving-wheel *b* by the interposi-
85 tion of the mutilated portion *j'* in the path of pin *b'*, so that further operation of the generator will not operate the signal-wheel shaft. In order to reset the apparatus for a subse-
90 quent operation, there is provided a spring-retracted push-button *l*, which when pressed inward by the operator engages a lateral pin *k* on the face of star-wheel *j* and rotates the latter sufficiently to bring the first tooth thereof into position to be engaged by the
95 pin *b'* on the master-wheel *b*. In order to limit

the successive movements of the star-wheel and the shaft *h* to the distance between two teeth on said star-wheel and to prevent the latter "overthrowing" when the master-wheel
 5 is driven rapidly, a spacer-wheel *t* is mounted on the shaft *h*, said wheel having one more tooth than the star-wheel, said wheel *t* being engaged by a spring-pawl *u*, which drops in
 10 amount of drag or resistance to the rotation of the shaft *h*.

The operation of the apparatus as thus far described is as follows: Each of said signal-wheels *i* is of course provided with an arrangement of teeth and spaces around its
 15 periphery to constitute a definite intelligible signal, and each wheel is adapted to transmit a distinctive signal. Any subscriber on a party-line desiring to call any other subscriber on said line inserts plug *r* in the socket
 20 *n*, indicated upon a suitable directory-card as corresponding to the subscriber to be called, (as, for example, if he wishes to call John Smith and socket No. 3 is indicated as
 25 Smith's number he inserts the plug in socket No. 3,) pushes button *l*, and turns the generator-crank. The master-wheel *b* revolves the star-wheel *j*, shaft *h*, and signal-wheels *i* step by step, and the circuit through the
 30 spring *m* corresponding to socket No. 3 is alternately made and broken by the corresponding signal-wheel *i* to send to line a series of impulses from the generator, which will produce on all of the subscribers' bells a succession of rings corresponding to Smith's call.
 35 When a complete call has been sent, the mutilated portion *j'* of star-wheel *j* comes in the path of pin *b'* on the master-wheel and stops the further rotation of the signal-wheel
 40 shaft. The magneto-circuit is also broken at this time by the engagement of the spring *m* with the final tooth on the signal-wheel, whereby said spring is moved out of contact with bar *g*. Should the subscriber desire to
 45 repeat the call, it is only necessary to push the button *l*, which advances the star-wheel sufficiently to bring the first tooth thereof into position to be engaged by the pin on wheel *b*, and the further operation of the generator
 50 will repeat the signal. By inserting the plug in any of the other holes it will be apparent that an appropriate set of impulses will be sent to line to call the corresponding subscriber.

55 In order to cut out the code-signaling apparatus, so that the telephone may be employed as an ordinary bridging instrument, a shunt *x* is provided between bars *f* and *g*, which shunt is normally broken by a spring-jack *p* and is completed to short-circuit the
 60 signaling-wheels and springs by inserting plug *r* in socket *o* in front of the spring-jack, so that the end of said plug engages the spring-terminals of said jack, as shown in
 65 Fig. 3. By withdrawing the plug from socket

o the shunt will be broken and the code-signaling apparatus will be included in the line-circuit when the plug is inserted in one of the sockets *n*.

The signal-disks *i* and the star-wheel *j* are
 70 preferably made of insulating material, which in addition to insulating the springs *m* also serves to materially reduce the abrading action of the engaging parts and also reduces
 75 the noise of operation.

It is to be noted that the code-signaling apparatus affords a simple and efficient attachment to the ordinary telephone set without affecting the normal operation of the apparatus, and it constitutes a valuable adjunct to party-line service to enable subscribers to automatically ring uniform and
 80 intelligible code-signals to call any other subscriber.

What I claim is—

85 1. A code-signaling telephone-call comprising a magneto-generator, a signal-wheel shaft, and mechanism connecting the signal-shaft with the generator driving-shaft, said mechanism comprising means for disconnecting
 90 said shafts when the signal-wheel shaft has been rotated to transmit a signal.

2. A code-signaling telephone-call comprising a magneto-generator, a signal-wheel shaft, and mechanism connecting the signal-shaft with the generator driving-shaft, said
 95 mechanism comprising a star-wheel on the signal-wheel shaft and a pin on the generator driving-gear cooperating with said star-wheel.
 100

3. A code-signaling telephone-call comprising a magneto-generator, a signal-wheel shaft, and mechanism connecting the signal-shaft with the generator driving-shaft, said
 105 mechanism comprising a mutilated star-wheel on the signal-wheel shaft and a pin on the generator driving-gear cooperating with the star-wheel, to drive the latter until it reaches the mutilated portion thereof.

4. A code-signaling telephone-call comprising a magneto-generator, a signal-wheel shaft, mechanism connecting the signal-shaft with the generator driving-shaft, said
 110 mechanism comprising a mutilated star-wheel on the signal-wheel shaft and a pin on the generator driving-gear cooperating with the star-wheel, to drive the latter until it reaches the mutilated portion thereof, and means for restoring operative relation of said
 115 star-wheel with said pin.
 120

5. A code-signaling telephone-call comprising a magneto-generator, a signal-wheel shaft, mechanism connecting the signal-shaft with the generator driving-shaft, said
 125 mechanism comprising a mutilated star-wheel on the signal-wheel shaft and a pin on the generator driving-gear cooperating with the star-wheel to drive the latter until it reaches the mutilated portion thereof, and a push-rod for advancing said star-wheel and
 130

restoring the operative relation of the latter with said pin.

6. A code-signaling telephone-call comprising a magneto-generator, a circuit connected therewith, a shaft having signal-wheels thereon, a series of contact-springs coöperating with said signal-wheels, a bar in said circuit upon which said springs are mounted, a second bar in said circuit from which said springs are normally separated, a plug engaging sockets adjacent to the respective springs to force one of the latter into engagement with said bar, and means serving to connect the generator driving-shaft and the signal-wheel shaft to rotate the latter to send a predetermined signal and then to disconnect said shafts.

7. A code-signaling telephone-call, comprising a magneto-generator, a circuit connected therewith, a series of contact-springs adapted to close said circuit, a shaft having signal-wheels thereon coöperating with said contact-springs, a plug adapted to be inserted in any one of a series of sockets adjacent to said springs to close the circuit through the corresponding spring, and means serving to connect the generator driving-shaft and the signal-wheel shaft to rotate the latter to send a predetermined signal and then to disconnect said shafts.

8. A code-signaling telephone-call, comprising a magneto-generator, an inclosing box or casing therefor, a frame carrying a series of spring-contacts each adapted to close the generator-circuit, a shaft carrying a series of signal-wheels coöperating with said springs, the casing having a series of plug-sockets adjacent to said springs, a plug adapted to be inserted in any of said sockets and move the corresponding spring to close the generator-circuit, and means serving to connect the generator driving-shaft and the signal-wheel shaft to rotate the latter to send a predetermined signal and then to disconnect said shafts.

9. A code-signaling telephone-call, comprising a magneto-generator, a series of signal-wheels and plug-actuated contact-springs coöperating therewith to control the generator-circuit in sending predetermined signals,

an open shunt around said signal-wheels and springs, and means for closing said shunt to exclude the wheels and springs from the generator-circuit.

10. A code-signaling telephone-call, comprising a magneto-generator, a series of signal-wheels and plug-actuated contact-springs coöperating therewith to control the generator-circuit in sending predetermined signals, an open shunt around said signal-wheels and springs, and a plug for closing said shunt to exclude the wheels and springs from the generator-circuit.

11. A code-signaling telephone-call, comprising a magneto-generator, a circuit connected therewith, a series of contact-springs adapted to close said circuit, a shaft having signal-wheels thereon coöperating with said contact-springs, means coöperating with said contact-springs to close the circuit, and means serving to connect the generator driving-shaft and the signal-wheel shaft to rotate the latter to send a predetermined signal and then to disconnect said shafts.

12. A code-signaling telephone-call, comprising a magneto-generator, a series of signal-wheels, plug-actuated contact-springs coöperating therewith to control the generator-circuit in sending predetermined signals, and means serving to connect the generator driving-shaft and the signal-wheels to rotate the latter to send a signal and then to disconnect the shaft and signal-wheels.

13. A code-signaling telephone-call, comprising a magneto-generator, a series of signal-wheels, a series of contact-springs coöperating therewith to control the generator-circuit in sending predetermined signals, means coöperating with said contact-springs to close the circuit, and means serving to connect the generator driving-shaft and the signal-wheels to rotate the latter to send a signal and then to disconnect the shaft and signal-wheels.

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

CHARLES T. MASON

Witnesses:

MURR HALL,

F. C. MANNING.