

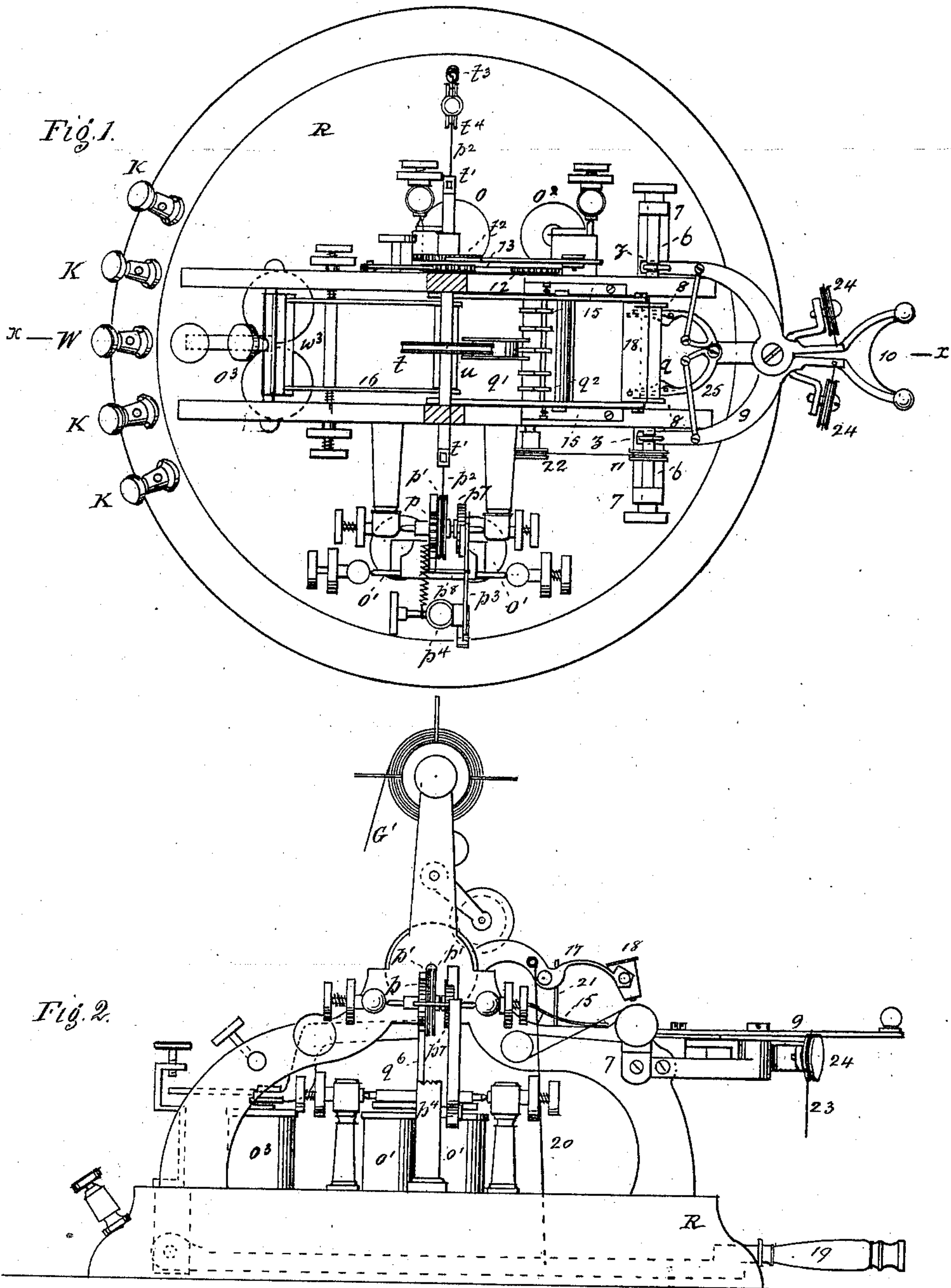
(No Model.)

A. F. & F. B. JOHNSON.
SECRET PRINTING TELEGRAPH.

3 Sheets—Sheet 1.

No. 253,062.

Patented Jan. 31, 1882.



Witnesses:
William G. Clark
Geo. J. Gleason

Inventors:
Albert F. Johnson.
Frank. B. Johnson.
By their atty
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(No Model.)

3 Sheets—Sheet 2.

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Fig. 4.

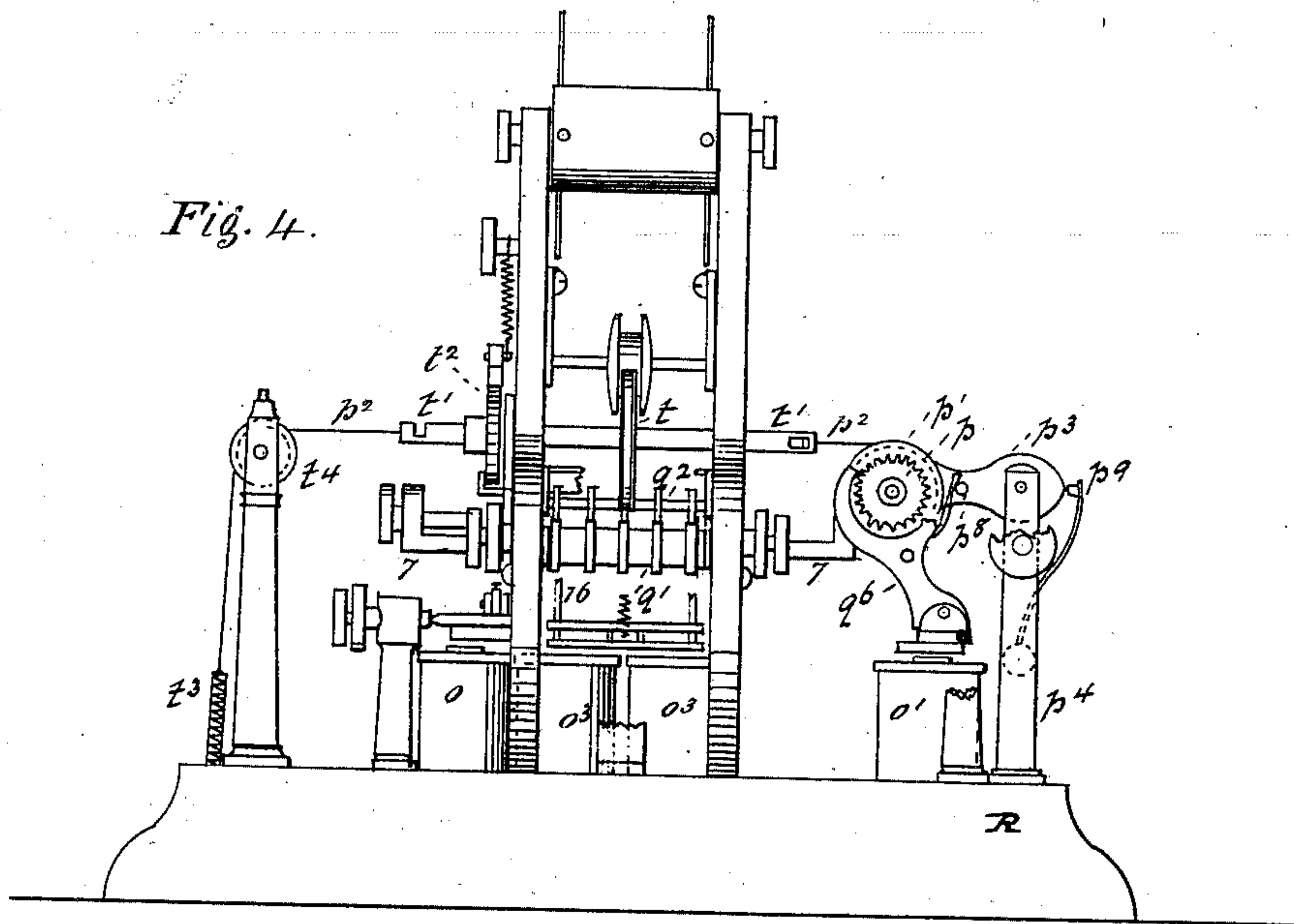
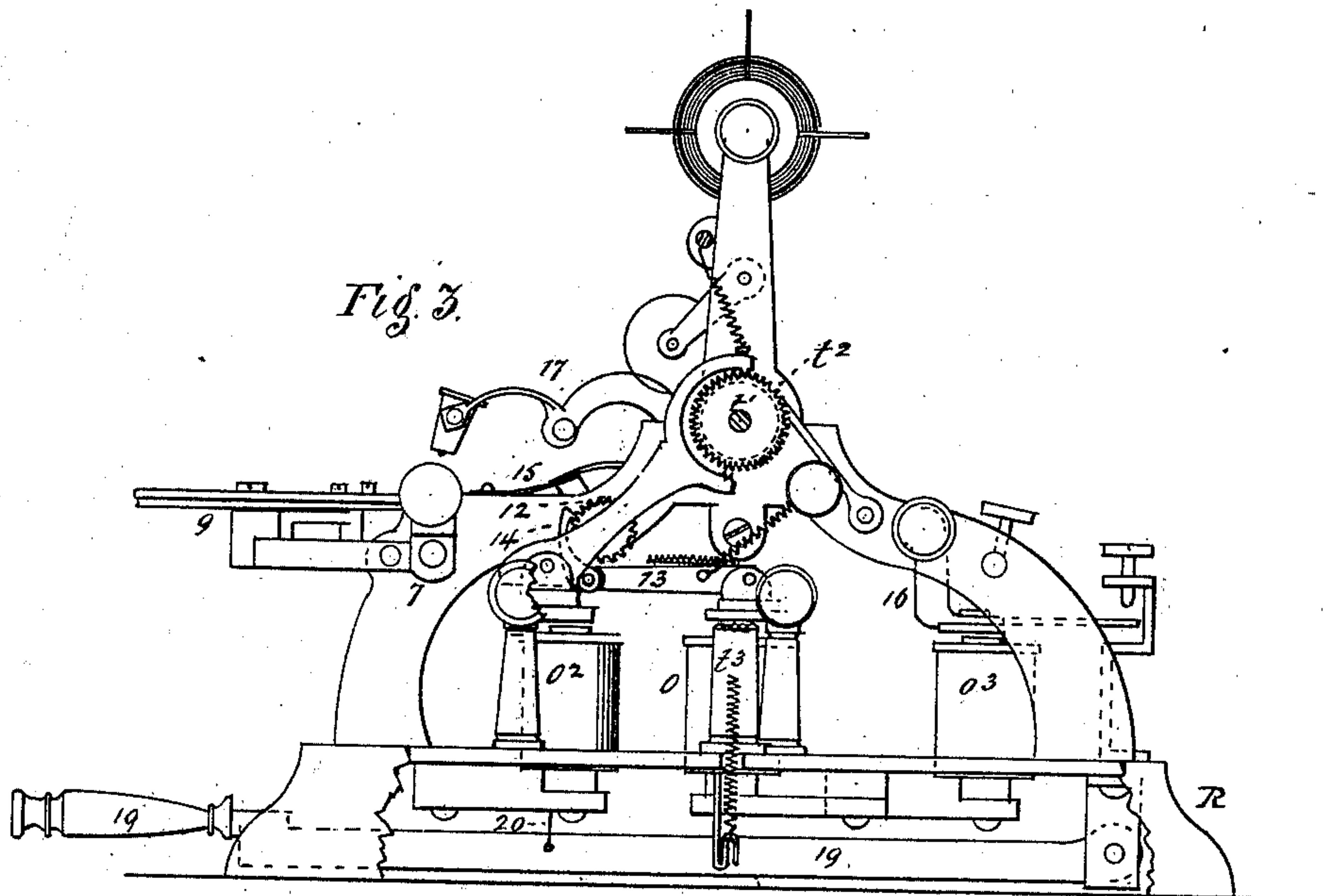


Fig. 3.



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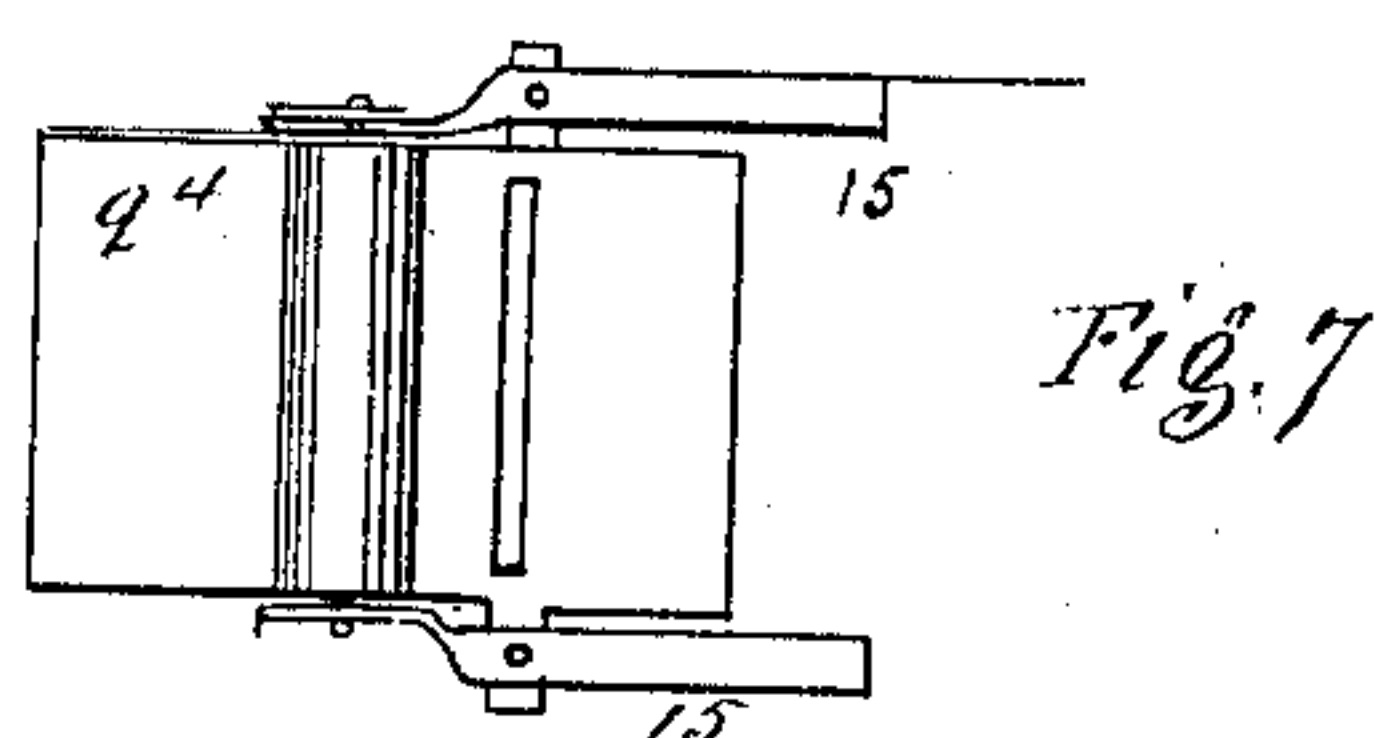
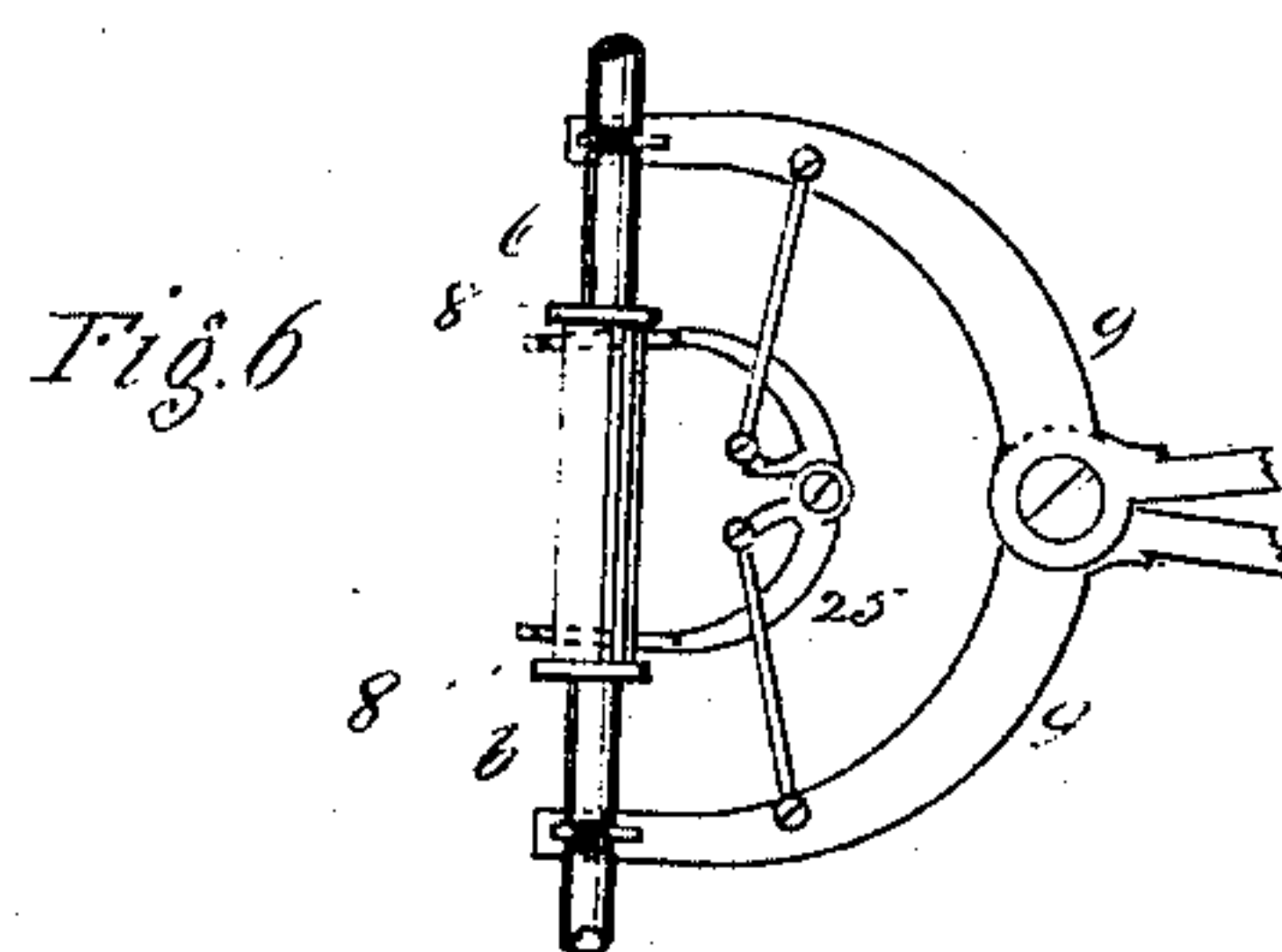
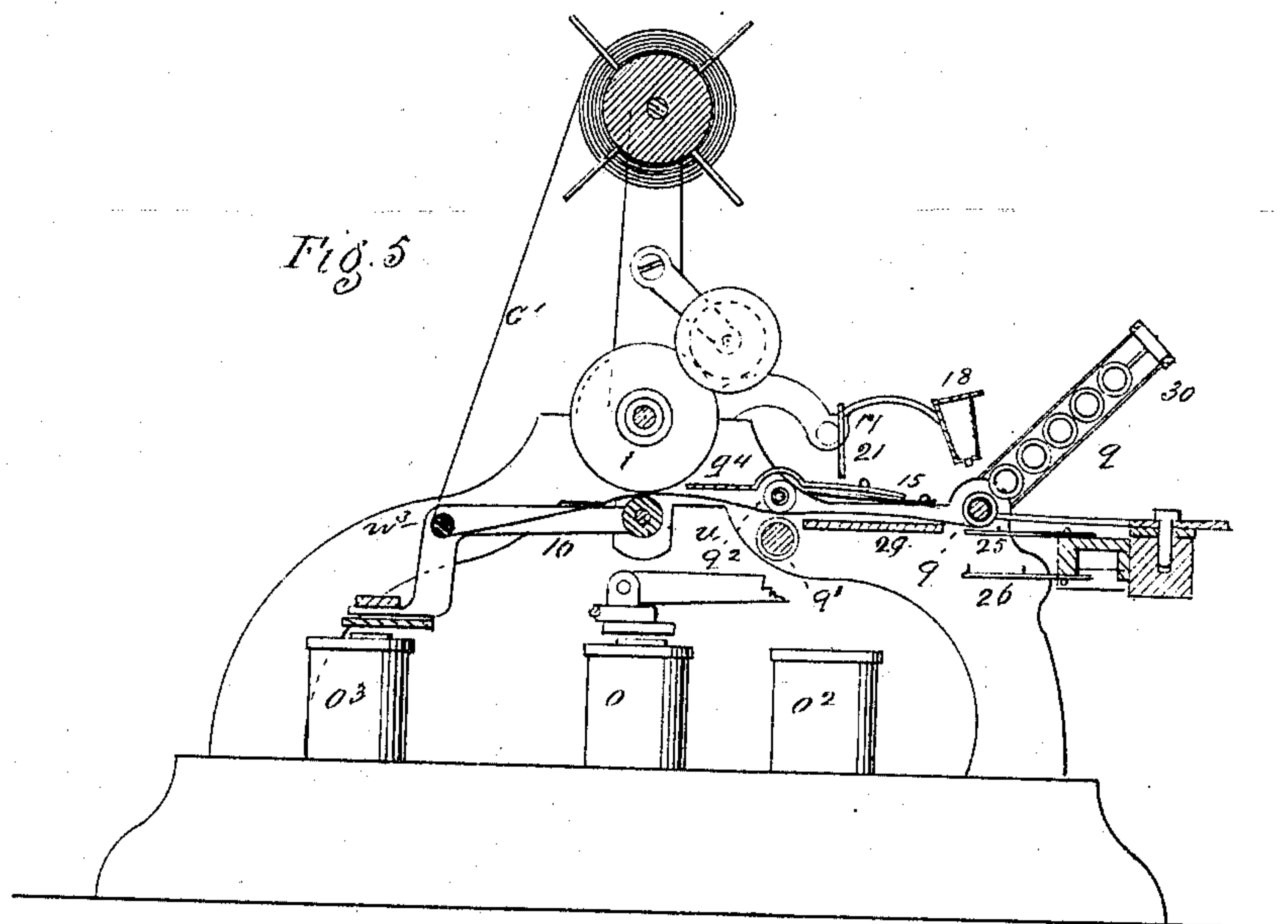
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UNITED STATES PATENT OFFICE.

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SECRET-PRINTING TELEGRAPH

SPECIFICATION forming part of Letters Patent No. 253,062, dated January 31, 1882.

Application filed August 16, 1881. (No model.)

To all whom it may concern:

Be it known that we, ALBERT F. JOHNSON and FRANK B. JOHNSON, citizens of the United States, residing in the city of Brooklyn, in the county of Kings and State of New York, have jointly invented new and useful Improvements in Instruments for Receiving and Printing Secret Telegraphic Dispatches; and we hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, (in three sheets,) which form a part of this specification.

This invention relates to improvements in instruments for receiving and printing telegraphic dispatches.

It consists in certain novel devices and combinations of mechanism, hereinafter particularly described, for receiving, printing in ordinary alphabetical characters, and sealing up the dispatch in such a manner that the contents or purport of the message cannot be ascertained by a person in charge of said machine, or who may be watching the same while these operations are being performed. These said devices and combinations of mechanism constitute what we have termed the "receiving-machine" in the specification of our "improved system of transmitting secret messages by electro-magnetic telegraph," filed simultaneously herewith and marked A.

In the accompanying drawings, Figure 1 represents a plan view of the machine; Fig. 2, a side elevation of the same; Fig. 3, an elevation of the opposite side; Fig. 4, an end view with portions left off; Fig. 5, a longitudinal section on the line *xx*; and Figs. 6 and 7 are detail views hereinafter described.

Similar letters of reference indicate the same parts in all the several figures.

KKKK represent a series of binding-posts secured upon the base R, which supports and holds the working parts, and which may be of suitable form and dimensions. I is the frame of the machine, which may also be of suitable form. The binding-posts K K K K are connected by wires with the electro-magnets *o o'* *o² o³*, respectively, and with the transmitting-machine, and with the positive pole of the battery at the station from which the message is

sent, as fully set forth in the specification A above mentioned.

W is a binding-post connected with a series of insulated posts on the transmitting-machine, and thence with the said battery.

G' is a paper strip upon which the message is to be printed. The message is printed in ordinary alphabetical characters, together with numerals (when required) and punctuation-marks, transversely across the paper strip as the latter is fed longitudinally through the machine.

In the drawings the machine is represented as being adapted to print lines having eighteen letter-spaces each; but it will be understood that the strip may have a larger or smaller number of letter-spaces on each line, in which case the mechanism that operates the transverse movements of the type-wheel must be changed correspondingly; and we may here state that one letter-space is left vacant between the last letter of one word and the first letter of the next.

As set forth in said specification A, we ordinarily employ the three special machines in our system—viz., the preparing-machine, the transmitting-machine, and the receiving-machine, herein described; but that the transmitting-machine and the indented strip of paper may be dispensed with when the author of the message himself sends it through the instruments by the use of a modification described in specifications A and B, and in order to avoid prolixity, we shall in this description suppose the message to be sent by the use of the prepared strip, without mentioning the modification for producing the same effects on the receiving-machine.

t represents the type-wheel or printing-wheel, on the periphery of which are characters corresponding in kind and order with those on the letter-wheel of the instrument by which the message is prepared. The wheel *t* is fixed upon a shaft, *t'*, and has both a rotary and a bodily movement transversely across the frame of the machine. Its rotary movement is made synchronous with the movement of the letter-wheel just mentioned by the pulsations of the armature of the magnet *o²*, which

operates a pallet that is pivoted to the said armature, and which rotates a toothed wheel, t^2 , fixed on the shaft t' , one tooth at each stroke of the said armature. It is moved transversely a letter-space each time a letter or character is printed, and the space of one letter in addition at the end of each word, this transverse movement being effected by means of a pallet pivoted to the armature of the magnet o' , which rotates a toothed wheel, p , one tooth at each stroke of said armature, the said wheel p being fixed upon the same shaft as is the pulley p' , to which latter one end of a cord or wire, p^2 , is attached; which at its other end is attached to the end of the shaft t' . To the other end of the shaft t' a cord is attached, which passes over a pulley, t^4 , and is then secured to a spring, t^3 , which latter retracts the said shaft when the type-wheel has reached the end of each line. The ends of the shaft t' are each provided with a swivel, so that the shaft can rotate without twisting the cord.

The devices for liberating the pulley p' , so that the spring can draw back the type-wheel, are as follows: Upon the same shaft as the wheel p and pulley p' is fixed another toothed wheel, p^7 , and a lever, p^3 , pivoted near its rear end to an upright post, p^4 , is provided at its front end with a pawl, which engages with the teeth of the wheel p^7 , and holds it, as well as the wheel p and pulley p' , while the pawl q^6 , which rotates the wheel p , and which is pivoted to the armature, is retracted. These wheels and the pulley make only about half-revolutions, the wheel p having twice the number of teeth that there are letter-spaces in each line of printing; and whenever the type-wheel t has been moved transversely to the extreme end of a line a pin fixed upon the pulley p' , or upon the wheel p , strikes a pin, p^8 , secured to the lever p^3 , and thereby releases both wheels and the pulley and permits the spring t^3 to draw back the shaft t' , upon which the type-wheel is fixed, so that the latter is brought into position to commence another line. A spring-catch, p^9 , secured to the post p^4 , holds the lever p^3 while the wheel is being retracted. Any equivalent devices to those above mentioned may be employed to run back the type-wheel when a line has been completed and bring it into position to commence the next line.

The strip G' , upon which the message is printed, is wound upon a spool or reel placed at the upper part of the frame. Its end is then passed over a bar or roller, w^3 , and between the type-wheel t and the platen or impressing-roller u , and thence between a pair of feed-rollers, $q' q^2$, and thence to a quill or short cylinder, q , to which latter it is gummed, and upon which it is wound as the printing of the message proceeds. The feed-rollers $q' q^2$ are rotated by the armature of the magnet o by means of a toothed wheel, 12, secured to the end of the lower roller, q' , which is rotated one tooth at each stroke of the said armature through

the medium of a lever, 13, which is pivoted at one end to the said armature, and to the other end of which is pivoted a pawl, 14, that engages with the teeth of the wheel 12. The upper roller, q^2 , is journaled at each end to a pair of spring-arms, 15, one of which is secured to each side of the frame of the machine, and which produce a sufficient degree of friction between the rollers to insure the paper strip being fed forward with regularity the space between two lines of printing at each stroke of the armature of the magnet o . The quill q is inserted between the two ends of a divided shaft, 6, having bearings in the arms 7 at each side of the frame, and is held by the pressure of flanges 8 8, provided at the ends of the said shaft, so that it rotates with them. This pressure is effected by means of a pair of curved arms, 9, pivoted to the frame, the inner ends of which are pressed toward each other by the action of a spring, 10, inserted between their outer ends, and are each provided with a small longitudinal ridge or projection, which fit into and under shallow transverse grooves formed in each portion of the shaft 6, as shown at z . This shaft 6 is rotated by means of a pulley, 11, secured upon one portion of the same, which said pulley is driven by a corresponding pulley, 22, fixed upon the end of the lower roller, q' , the band being sufficiently slack to slip on the pulleys when the circumference of the roll on the quill q increases, so that the action of the feed-rollers $q' q^2$ shall not be affected thereby.

The platen or impressing-roller u is secured at the end of a pivoted frame, 16, immediately underneath the type-wheel, and is raised to press the strip G' against the latter by the action of the armature of the magnet o^3 at each stroke of the said armature, the said frame 16 being connected to the latter.

That portion of the strip G' which extends between the type-wheel and the quill q is entirely hidden from view by means of a plate or shield, q^4 , (shown most plainly in Fig. 5,) which extends across the frame and between the type-wheel and the quill, above the strip, and is riveted at each side to the spring-arms 15, which hold the upper feed-roller, q^2 , so that a person watching the operations of the machine cannot see the characters that have been printed thereon; and this plate q^4 cannot be removed without also removing the upper feed-roller, q^2 , and consequently the machine will not operate to print a message unless it is in place. A second plate, 29, is secured to the frame underneath the plate q^4 , over which former the strip travels.

17 represents a vibrating frame pivoted at one end to the frame of the machine, and carrying at its other end, which is made of thin spring metal, a mucilage-cup, 18, which latter is held directly over the quill q . This frame is operated by means of a hand-lever, 19, through the medium of a wire rod, 20, secured at one end to the frame 17 and at its other end to the said

lever; and at the end of the message this cup 18 is depressed by means of the lever and caused to deposit a line of mucilage upon the printed strip on the quill, after which the paper strip is fed longitudinally (as set forth in specification A) to receive the address, and the said cup is then brought a second time in contact with the roll to seal the end of the printed strip. A longer stroke is made this second time, which brings the cutting-edge of a knife, 21, secured in the frame 17, down upon the strip as it lies on the plate 29, and cuts off the portion containing the dispatch. The printed message or dispatch, thus rolled upon the quill and sealed, may then be taken from the machine, for which purpose the outer ends of the arms 9 are spread apart to release the quill from the pressure of the flanges on the shaft 6, and the said quill then drops therefrom. The said arms 9 may be thus spread apart by means of cords 23 and 23, attached one to each arm, which, after being carried over pulleys 24 24, pivoted to arms extending from the frame of the machine, may be connected and carried to any convenient point, and the requisite force applied thereto to overcome the spring 10 when the dispatch is to be removed.

Pivoted to the arms 9, and operated thereby, are two other pairs of arms, 25 and 26, one pair above the other, the ends of which extend underneath the quill *q*. The upper pair, 25, move in the same direction as the arms 9, and are for the purpose of supporting the quill while it is being clamped by the arms 9, and they also press against the strip as it is being rolled upon the quill. The lower pair move in the opposite direction and catch the quill as it falls, so that it forms a support for the succeeding quill until placed in position. The quills successively fall into position from a rack or hopper, 30, secured to the frame of the machine.

From the above description it will be understood that the message is printed in ordinary alphabetical characters in lines running transversely across the strip, while the latter is fed longitudinally through the machine; also, that the strip, after receiving the impressions of the

type-wheel, is entirely hidden from view until it is rolled upon the quill, and that the devices employed for concealing the printing are necessary to the operation of the machine; and, also, that the dispatch is sealed up before it is taken from the machine.

The several armatures of the magnets are suspended in the ordinary manner, and are provided with the usual check-screws and retracting-springs, which do not demand special mention, and to avoid crowding the drawings are many of them not shown therein; and for the same reason parts are omitted from each of the figures. Fig. 6 represents a detached plan view of the quill in position, and Fig. 7 a plan view of the shield.

What we claim as our invention is—

1. In a telegraph receiving-instrument provided with mechanism, as described, for feeding a strip of paper through the same, the combination of a shield or plate arranged in such manner as to conceal the said strip from view while it is being passed through the machine, a quill or cylinder upon which the said strip is received and wound as the message is printed thereupon, and mechanism, as described, for rotating said quill and winding the message thereon, substantially as herein set forth.

2. In a telegraph receiving-instrument, the following elements in combination, viz: mechanism, as described, for feeding a strip of paper longitudinally through the instrument, a type or printing wheel arranged and operated to print a message upon said strip in transverse lines, a shield or plate for concealing the printed portion of the strip from view, a quill or cylinder upon which the said strip is received, wound, and sealed, and mechanism, as described, for rotating said quill and winding the message thereon, substantially as herein set forth and described.

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