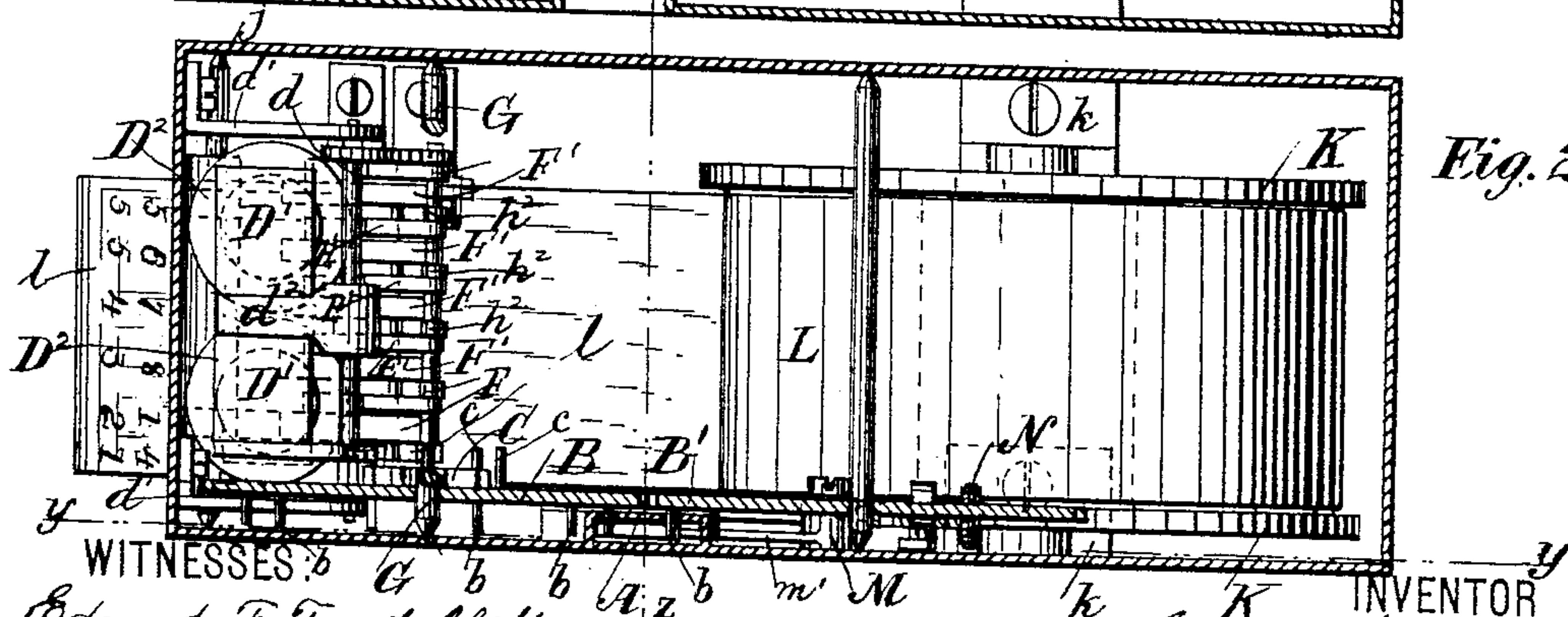


2 Sheets—Sheet 1.

No. 396,786.

Patented Jan. 29, 1889.



Edmund F. Townellotte.
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Gustavus G. Wagner
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(No Model.)

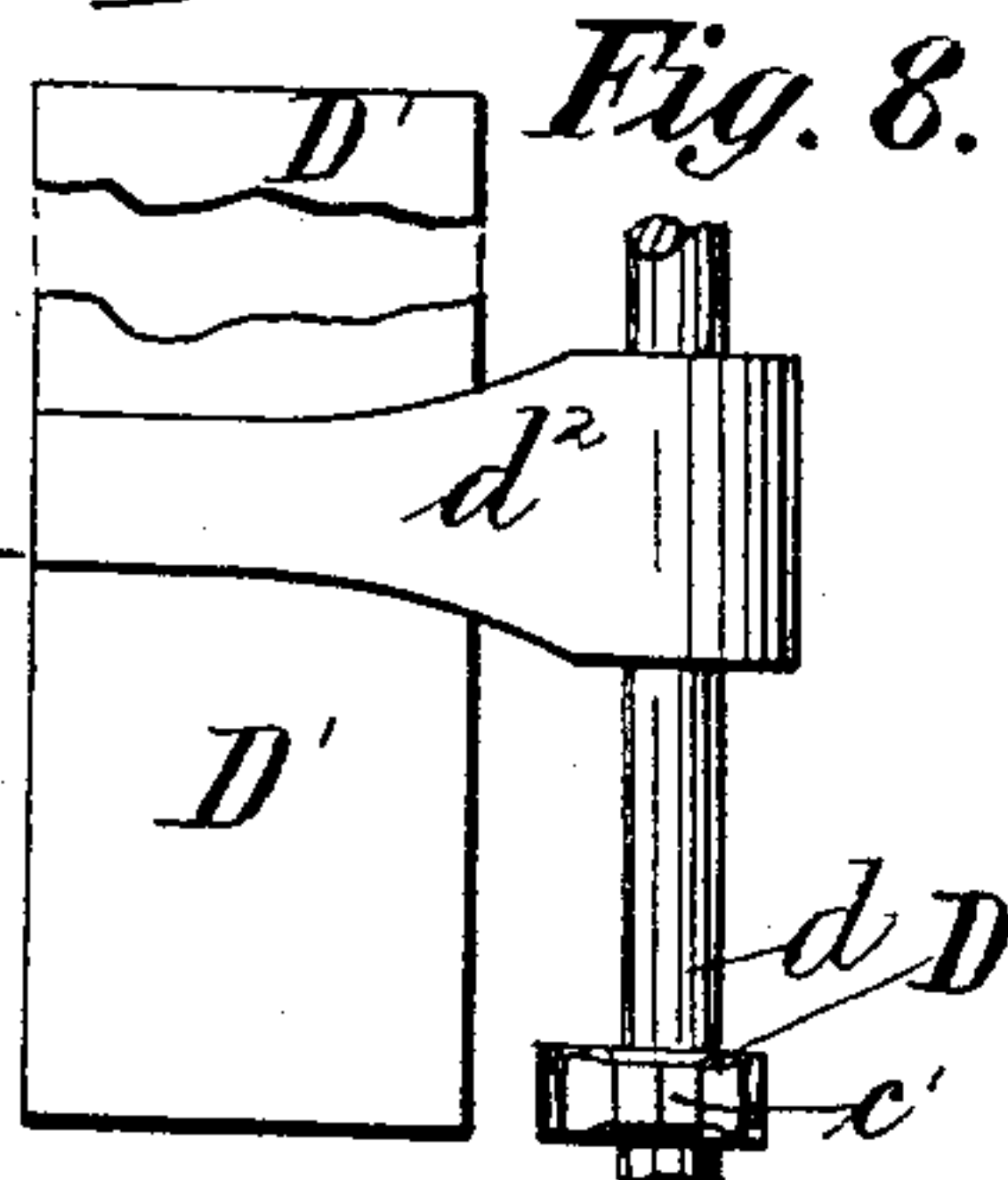
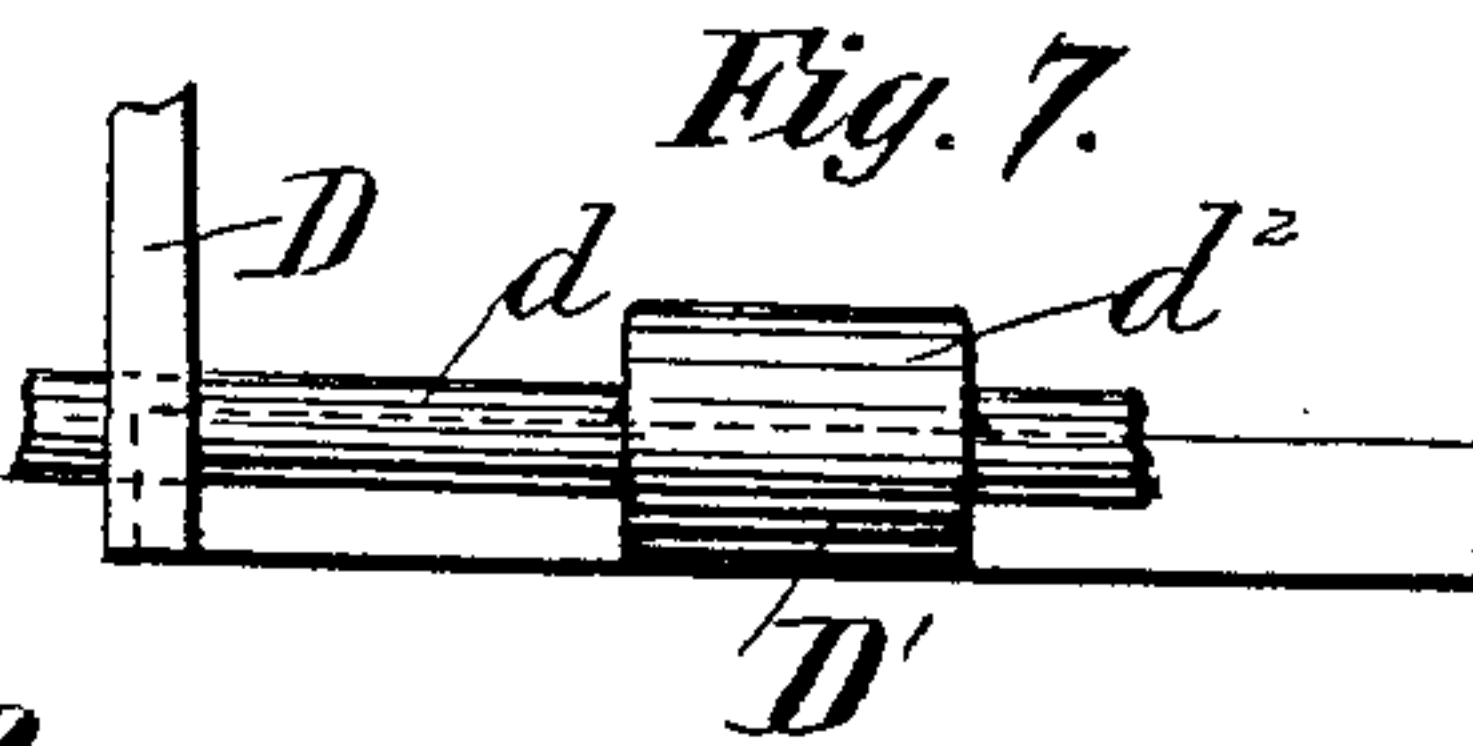
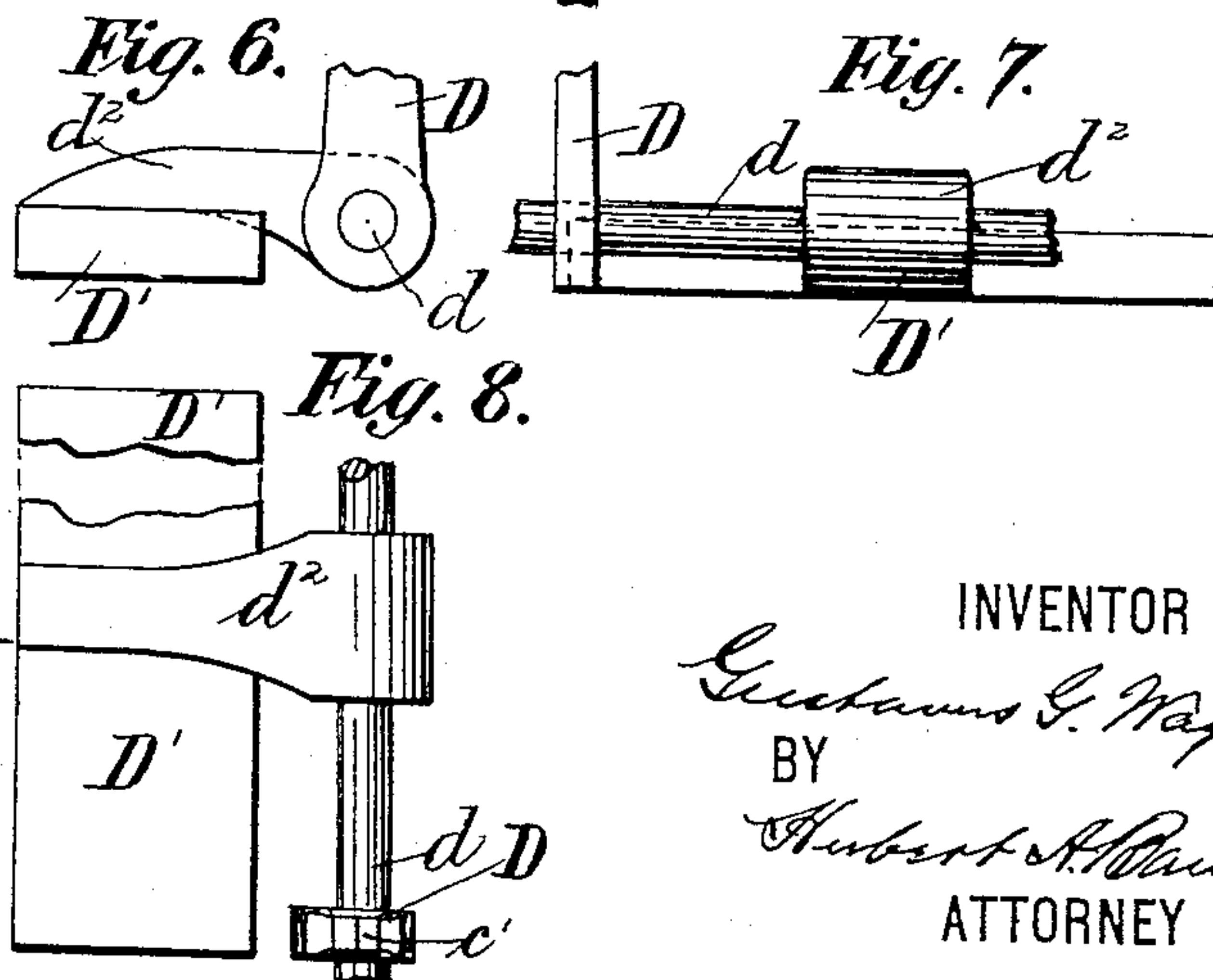
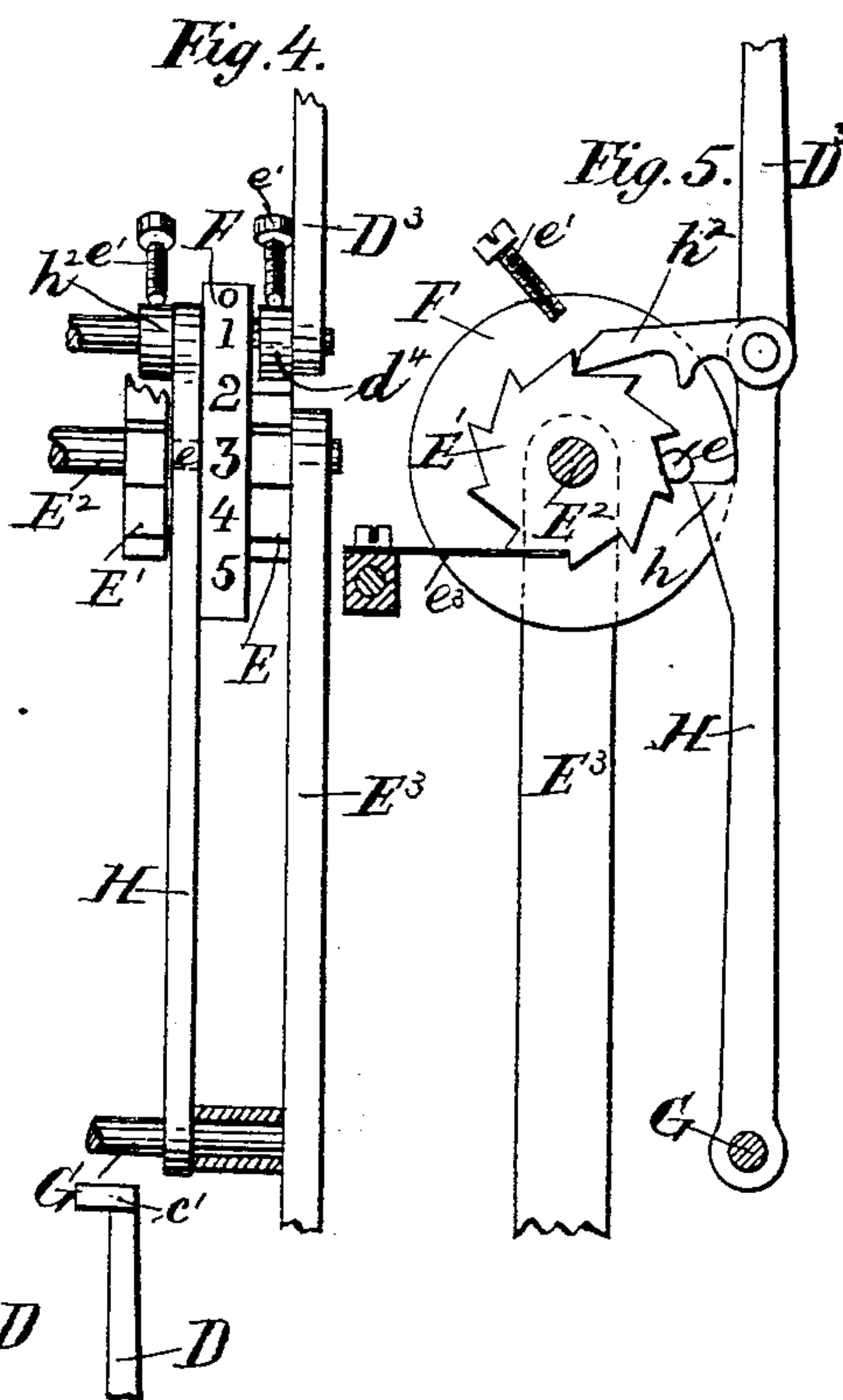
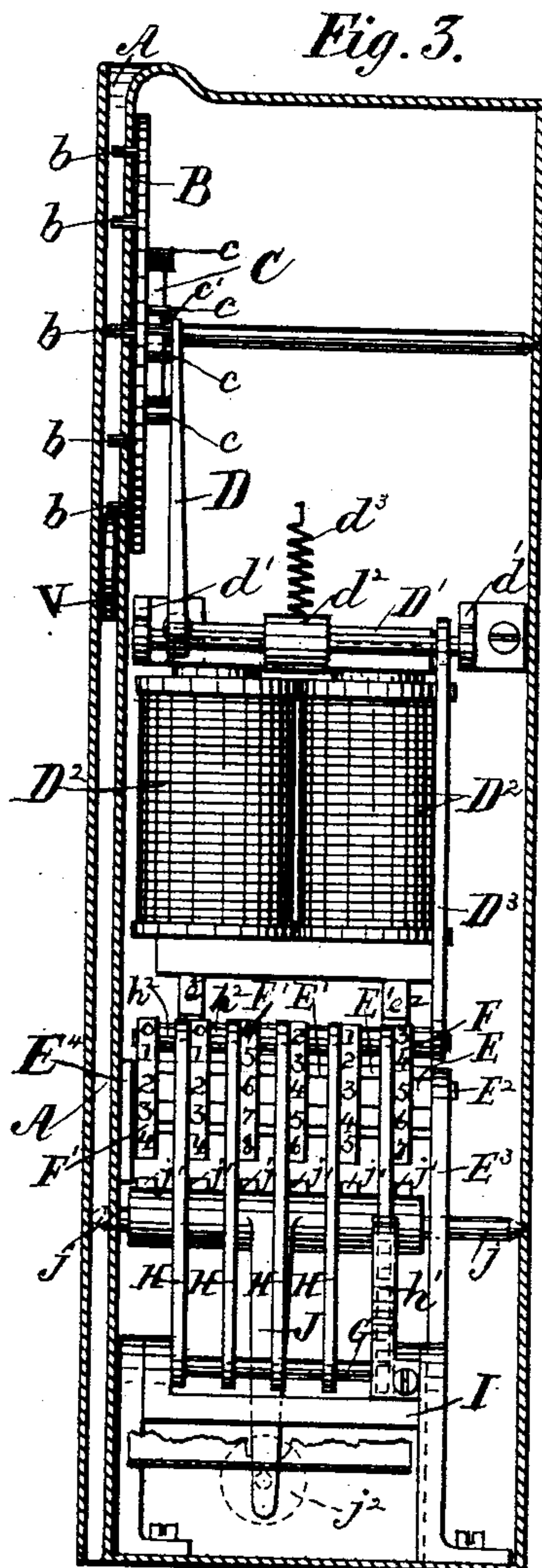
2 Sheets—Sheet 2.

G. G. WAGNER.

FARE BOX AND REGISTER.

No. 396,786.

Patented Jan. 29, 1889.



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UNITED STATES PATENT OFFICE.

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FARE BOX AND REGISTER.

SPECIFICATION forming part of Letters Patent No. 396,786, dated January 29, 1889.

Application filed September 13, 1887. Serial No. 249,552. (No model.)

To all whom it may concern:

Be it known that I, GUSTAVUS G. WAGNER, of Mount Vernon, in the county of Westchester and State of New York, have invented certain new and useful Improvements in Counting-Machines, of which the following is such a full, clear, concise, and exact description as will enable others skilled in the art to which my invention appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

My invention relates more especially to coin-counters adapted for use on railroads, ferries, sale-stands, and in stores or other places where a specific coin may be received.

The principal object of my invention is to provide a convenient apparatus for keeping account of the number of coins of a particular denomination received; and to this end the invention consists in the construction of means for regulating the passage of coin into a receiver and in electrical connections and mechanism, as hereinafter more fully described, and pointed out in the claims.

The accompanying drawings represent one practical embodiment of the invention.

Figure 1 is a vertical section, taken on the line *yy* of Fig. 2, of a case provided with a chute, and within which case is inclosed the coin counting and regulating mechanism, shown in side elevation. Fig. 2 is a horizontal section of same, taken on line *xx* of Fig. 1, and showing internal mechanism by a sectional and plan view thereof. Fig. 3 is a vertical cross-section of the same, taken on line *zz* of Figs. 1 and 2, and showing the magnets and registering mechanism in front elevation. Fig. 4 is a front view in detail of one of the figure-wheels and a portion of a second with connections, and Fig. 5 is a side view of the same. Fig. 6 is an end view of the armature and shaft with side view of connecting-tongue and escapement-lever, while Fig. 7 is a front view, and Fig. 8 a plan view, of the same.

In the drawings, A represents the plate which forms a chute for guiding the coin; B and B', regulating-wheels, preferably two in number, working with each other and provided on one side with a series of pins, *b b*, placed in position and so arranged as to pass

through the slots *b' b'* in the plate A, which pins support the coin until released therefrom by the rotation of the wheels and serve to prevent the passage of more than one at a time. Formed or moving with the wheel B is an escapement-wheel, C, which acts in connection with escapement-pins *c* and escapement-lever D, such lever being provided with an escapement-pallet, *c'*, which plays between and engages with the escapement teeth and pins, said parts forming a stop to limit the motion of pins *b*.

The escapement-lever D is preferably formed with or attached to a shaft, *d*, secured by brackets *d' d'*. The shaft *d* is provided with a tongue, *d²*, which carries an armature, D', in proximity or adjacent to magnets D², which armature may be retracted therefrom by a spring, *d³*. On the shaft *d* is a downwardly-projecting lever-arm, D³, provided with a pawl, *d⁴*, which pawl engages a ratchet-wheel, E, and being one of a series, the succeeding ones of which are of like form, loosely mounted upon a shaft, E², supported by the post E³ and bracket E⁴. The ratchet-wheel E carries the units figure-wheel F, and the succeeding ratchet-wheels E' carry the figure-wheels F', with figures of following decimal notations, each of the figure-wheels except the last being provided with a pin, *e*, for operating the next succeeding wheel when brought into proper position.

Upon a shaft, G, are loosely mounted levers H H, which extend upward to the ratchet-wheels E', and near their upper ends are each provided with a shoulder or lug, *h*, which extends within the path of travel of the pins *e*. Pressure-springs *h'* (best seen in Fig. 1) are secured to a frame, I, and made to bear against each of the levers H; but, to avoid complication, only that spring which connects with the first of such levers is shown in the drawings. A lever-arm, J, connects with a shaft pivoted at *j j*, having tongues provided with battens *j' j'* beneath the figure-wheels, which shaft and battens are operated through the lever J by pressure upon the button *j²*.

Upon the posts or brackets *k k* is journaled a spool, K, upon which is a roll of paper, L, having its outer strip free to unroll from the spool and form a feed-sheet, *l*, which passes

under the frame I and thence over the battens $j' j'$ and through an aperture in one of the side walls.

The magnets D^2 are charged by means of the battery O or other source of electricity, one line of the circuit connecting with the bell-crank lever M, pivoted at m , and having an arm, m' , moving in a slot in the chute A, and a flexible arm, m^3 , provided with a contact-piece arranged to make and break the circuit by moving to and from another contact-piece on an adjusting-screw, N, held in place by cleat n . The bell-crank lever M is also provided with the counter-weight m^2 , by which it is held in the position indicated by dotted lines in Fig. 1, in which position the circuit is broken.

The coin V, being dropped in the chute formed by the plate A, strikes against the pins $b b$, which pass through the slots $b' b'$, and the weight thereof partially rotates the wheels B B' until released from the pins, when it drops down and strikes on its passage against the arm m' of the bell-crank lever M, which causes the arm m^3 to swing back and bring the contact-pieces together, thereby closing the circuit. The electro-magnet D^2 thus charged attracts the armature D' , drawing the escapement-lever D into the position shown in Fig. 1, which causes the pallet c' to engage the pin c , thus temporarily stopping the motion of the wheels B B' and the pins $b b$ and preventing the immediate passage of another coin. At the same time the lever-arm D^3 is also moved into the position shown in Fig. 1, the pawl d^4 engaging with one of the teeth of the ratchet-wheel E. After the coin has passed the lever-arm m' of the bell-crank lever M, the same will return to its original position and the circuit will be broken, in which case the armature D' will be retracted away from the magnet D^2 by the spring d^3 , and the escapement-lever D will thereby be moved, so that the pallet c' will be brought in the course or angle of one of the teeth in the ratchet-wheel C, while the lever-arm D^3 will also change position and cause the pawl d^4 to move the ratchet-wheel E forward the distance of one tooth, and with it the units figure-wheel F one figure.

The forward movement of the pawl d^4 is limited by an adjusting screw or stop, e' , which passes through one end of a bracket, e^2 , secured to one of the side walls of the case, any backward movement of the ratchet and figure-wheel being prevented by the retaining pawl or spring e^3 . The units figure-wheel F and successive figure-wheels F' are each provided on the periphery with forms of the digits and cipher from which an impression may be taken and before the deposit of any coin should be set, so that if an impression be taken each wheel would record the cipher. One or all of the figure-wheels may, however, if desired, be provided with several sets of the digits and ciphers, with corresponding pins for engaging the succeeding wheel, or they

may have numbers up to any higher power of ten less one and the ciphers of such power.

When the units-wheel F has brought the highest number thereon to counting position, the pin e on such wheel engages with the lug h on the lever H, and on the next movement as the cipher or ciphers upon the units-wheel are brought forward the lever H is moved back by its contact with the pin e far enough to engage the pawl h^2 of such lever with one of the teeth upon the second ratchet-wheel, and as the pin e passes from the lug h the spring h' presses such lever and pawl forward, bringing the units upon the second figure-wheel around in line with the cipher of the units-wheel, when an impression taken would record ten deposits of coin, or one hundred or one thousand, according to the gradation of numbers upon first wheel.

The whole series of ratchet-wheels E' and figure-wheels F' are operated successively by the preceding wheel or wheels after the highest number thereon is brought into counting position and before the commencement of a repetition of the numbers of such wheel in the same way that the second wheel is moved by the first, and the forward movement of the respective pawls h^2 is also limited by an adjusting screw or stop, e' , while the backward movement of the several ratchet-wheels is prevented by a retaining-spring, e^3 , some of which connections are omitted from the drawings for the sake of simplicity.

When it is desired to take an impression or imprint from the figures, the button j^2 is pushed, and with it the lever J is moved, so that the battens $j' j'$ are made to press the feed-sheet l against the figure-wheels, thereby indenting or printing upon the paper the figures which are then opposite the battens, and the impression taken will indicate the number of coins deposited. The figure-wheels which have not been operated will print ciphers at the left of the figures brought opposite the batten by the deposit of coins.

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

1. In a counting-machine, a chute adapted to guide a coin, in combination with a series of pins or projections adapted to pass successively within said chute and be moved out of the same by the weight of a coin deposited therein, and a stop to limit the motion of the pins, whereby the said series of pins will permit of the passage of but one coin at a time.

2. In a counting-machine, the combination of a chute adapted to guide a coin, a series of pins or projections adapted to pass successively within said chute and be moved out of the same by the weight of a coin deposited therein, a stop to limit the motion of the pins, whereby said series will permit of the passage of but one coin at a time, a lever having an arm extending within said chute beneath said pins and balanced to be tipped by a coin released from said pins, and electrical contact-

pieces and connections for making and breaking circuit, and enumerating-connections, said contact-pieces being adapted to be operated by said lever, whereby an enumeration is effected.

3. In a counting-machine, the combination of a chute adapted to guide a coin, a series of pins or projections adapted to pass successively within said chute and be moved out of the same by the weight of a coin deposited therein, a stop to limit the motion of the pins, whereby said series of pins will permit of the passage of but one coin at a time, a magnet, electrical connections for charging the same, means for making and breaking circuit, an armature in proximity to said magnet, and suitably-disposed numerals having lever-connections with said armature and arranged to be moved in order by the same, whereby said electrical connections are operated and account is made at each deposit of coin.

4. In a counting-machine, the combination of a chute adapted to guide a coin, a series of pins or projections adapted to pass successively within said chute and be moved out of the same by the weight of a coin deposited therein, a stop to limit the motion of the pins, whereby said series will permit of the passage of but one coin at a time, a magnet, electrical connections for charging the same, means for making and breaking circuit, an armature in proximity to said magnet, a lever-arm connecting with said armature, and a figure-wheel for enumerating, said wheel having connection with and being adapted to be rotated by movements of said lever-arm.

5. In a counting-machine, the combination of a chute adapted to guide a coin, a series of pins or projections adapted to pass successively within said chute and be moved out of the same by the weight of a coin deposited therein, a stop to limit the motion of the pins, whereby the said series of pins will permit of the passage of but one coin at a time, a magnet, electrical connections for charging the same, contact-pieces for making and breaking circuit, a lever having an arm projecting in the path of travel of a coin deposited in said chute beneath said pins and balanced to be tipped by a coin released from said pins and operate said contact-pieces, an armature in proximity to said magnet, a lever-arm connecting with said armature, and a figure-wheel for enumerating, having connection with said last-named lever-arm.

6. In a counting-machine, the combination of a chute adapted to guide a coin, wheels provided with a series of pins or projections adapted to pass successively within said chute and be moved out of the same by the pressure of a coin deposited therein, escapement-connections with one of said wheels, a magnet, electrical connections for charging the same, means for making and breaking circuit, an armature in proximity to said magnet and adapted to operate said escapement-connections, and suitably-disposed numerals having

lever-connections with said armature and adapted to be moved in order by the same, whereby said wheels are stopped, said electrical connections operated and account made before a succeeding coin passes through the said chute.

7. In a counting-machine, the combination of a chute adapted to guide a coin, wheels provided with a series of pins or projections adapted to pass successively within said chute and to be moved out of the same by the pressure of a coin deposited therein, escapement-connections with one of said wheels, a magnet, electrical connections for charging the same, means for making and breaking circuit, an armature in proximity to said magnet and adapted to operate said escapement-connections, a lever or arm having connections with said armature, and a figure-wheel for enumerating, said figure-wheel having connection with and being adapted to be rotated by movements of said lever.

8. In a counting-machine, the combination of a chute adapted to guide a coin, wheels provided with a series of pins or projections adapted to pass successively within said chute and to be moved out of the same by the pressure of a coin deposited therein, escapement-connections with one of said wheels, a magnet, electrical connections for charging the same, a lever having an arm projecting in the path of travel of a coin deposited in said chute beneath said pins and balanced to be tipped by a coin released from said pins, electrical contact-pieces adapted to be operated by said lever, an armature for operating said escapement-connections, a lever or arm provided with a pawl and having connection with said armature, and a figure and ratchet wheel for engaging said pawl.

9. In a counting-machine, the combination of a chute adapted to guide a coin, a stop device to permit of the passage of one coin at a time, a magnet, electrical connections for charging the same, a lever having an arm projecting in the path of travel of a coin deposited in said chute beneath said pins and balanced to be tipped by a coin released therefrom, electrical contact-pieces adapted to be operated by said lever, an armature in proximity to said magnet, a lever or arm connecting with said armature, a figure-wheel for enumerating, pawl-and-ratchet connections between said last-named lever and said figure-wheel and adapted to impart motion from said lever to said wheel, and an adjusting screw or stop for limiting such motion.

10. In a counting-machine, the combination of a chute adapted to guide a coin, wheels provided with a series of pins or projections adapted to pass successively within said chute and be moved out of the same by the pressure of a coin deposited therein, escapement-connections with one of said wheels, a magnet, electrical connections for charging the same, means for making and breaking circuit, an armature in proximity to said magnet

and adapted to operate said escapement-connections, a wheel provided with a set of figures denoting the digits and ciphers or numbers up to any power of ten less one and the ciphers of such powers, a lever or arm having connection with said armature and adapted to impart motion to said wheel and bringing the numbers thereon *seriatim* into position for counting, one or more of these wheels provided with figures in numerical order and of increasing decimal denominations, the figures upon the several wheels being adapted to imprint numbers therefrom, the said last-named wheels forming with the first a series, the successive wheels of which have connections adapted to engage the wheel with the figures of next lower denomination, receive motion therefrom, actuate the succeeding wheel, and thereby regularly advance the numbers thereon after the higher number of the engaged wheel is each time brought into counting position and before a repetition of the numbers upon such wheel is commenced.

11. In a counting-machine, the combination of a chute adapted to guide a coin, a series of movable pins in said chute, and a stop to limit the motion of the pins, a lever having an arm projecting in the path of travel of a coin deposited in said chute and balanced to be tipped by such coin, suitably-disposed figure-wheels, a carrying device for said figure-wheels, and connections between the same and said lever-arm, said connections being adapted to impart motion to said carrying device and to regularly advance said figures to counting position as often as said arm is tipped, whereby account is made of each deposit of coin.

12. In a counting-machine, the combination of a chute adapted to guide a coin, a series of movable pins in said chute, and a stop to limit the motion of the pins, a lever having an arm projecting in the path of travel of a coin deposited in said chute and balanced to be tipped by such coin, suitably-disposed figure-wheels adapted to imprint numbers therefrom, a carrying device for said figure-wheels, connections between said carrying device and said lever-arm, said connections being adapted to impart motion to said carrying device and to regularly advance said figures to counting positions as often as said arm is tipped, and connections for taking an imprint of numbers counted by such figures.

13. In a counting-machine, the combination of a chute adapted to guide a coin, a series of pins or projections adapted to pass successively within said chute and be moved out of the same by the pressure of a coin deposited therein, a stop to limit the motion of the pins, whereby said series of pins will permit the passage of but one coin at a time, a lever having an arm projecting in the path of travel of a coin deposited in said chute and balanced to be tipped by such coin after being released from said pins, suitably-disposed figure-wheels, a carrying device for said figure-wheels, and connections between

the same and said lever-arm, said connections being adapted to impart motion to said carrying device and to regularly advance said figures to counting position as often as said arm is tipped.

14. In a counting-machine, the combination of a chute adapted to guide a coin, a series of movable pins in said chute and a stop to limit the motion of the pins, a magnet, electrical connections for charging the same, a lever having an arm projecting in the path of travel of a coin deposited in said chute and balanced to be tipped by such coin and operate said electrical connections, an armature in proximity to said magnet, a wheel provided with a set of figures denoting the digits and ciphers or numbers up to any power of ten less one and the ciphers of such power, lever-connections with said armature for rotating said wheel and bringing said numbers *seriatim* to counting position, one or more other wheels provided with figures in numerical order and of increasing decimal denominations, and connections for rotating said wheels and regularly advancing the numbers thereon after the highest number upon the preceding wheel is each time brought to counting position and before repetition of the numbers on such wheel is commenced.

15. In a counting-machine, the combination of a magnet, electrical connections for charging the same, means for making and breaking circuit, an armature in proximity to said magnet, a lever-arm connecting with said armature, a wheel provided with a set of figures denoting the digits and cipher or numbers up to any power of ten less one and the ciphers of such power, said wheel having connections with and being adapted to be rotated by movements of said lever-arm and bring said numbers *seriatim* to position for counting, one or more other wheels provided with figures in numerical order and of increasing decimal denominations, the figures upon the several wheels being adapted to imprint numbers therefrom, connections for rotating the said several wheels succeeding the first and regularly advancing the numbers thereon after the highest number upon the preceding wheel is each time brought to counting position and before repetition of the numbers upon such wheel is commenced, a batten or battens adjacent to the figures in counting position, a handle for operating said battens, connections for feeding material upon which an imprint may be taken between said figures and said battens, and a lever adapted to move said battens against said material and press the same against said figures.

16. In a counting-machine, the combination of a chute adapted to guide a coin, a series of pins or projections adapted to pass successively within said chute and be moved out of the same by the pressure of a coin deposited therein, a stop to limit the motion of the pins, whereby said series of pins will ad-

mit of the passage of but one coin at a time, a lever having an arm projecting in the path of travel of a coin deposited in said chute and balanced to be tipped by such coin after
5 being released from said pins, suitably-disposed figures adapted to imprint numbers, connections between said figures and said lever-arm, said connections being adapted to regularly advance said figures to counting position as often as said arm is tipped, a batten
10 or battens adjacent to the figures in counting position, connections for feeding material upon which an imprint may be taken between the figures and battens, and a lever adapted to move said battens against said
15 material and press the same against said figures.

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