

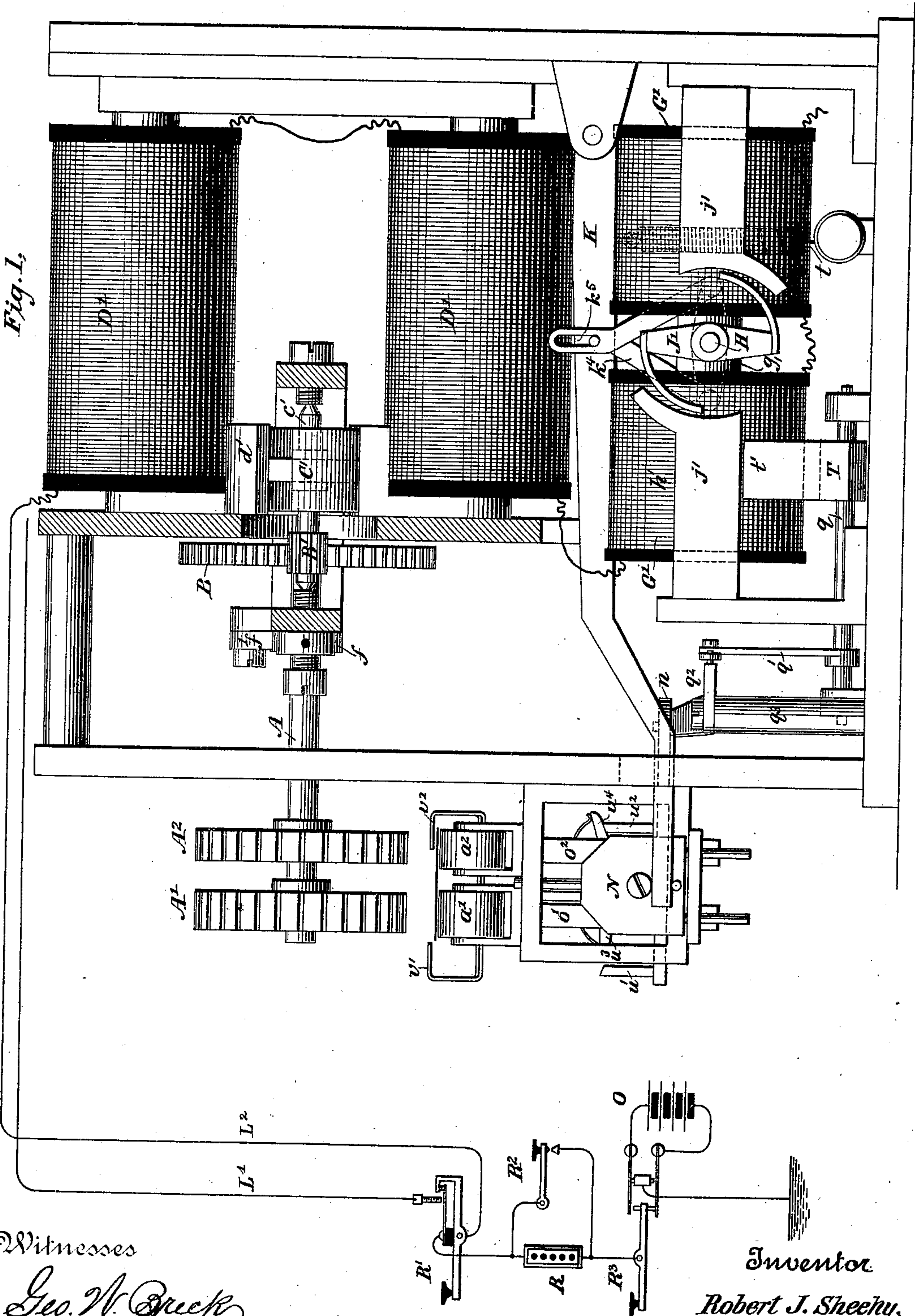
(No Model.)

3 Sheets—Sheet 1.

R. J. SHEEHY.
PRINTING TELEGRAPH.

No. 506,269.

Patented Oct. 10, 1893.



Witnesses

Geo. W. Buck

Carrie E. Ashley

Inventor

Robert J. Sheehy,

By his Attorneys

Robert Edgecomb

(No Model.)

3 Sheets—Sheet 2.

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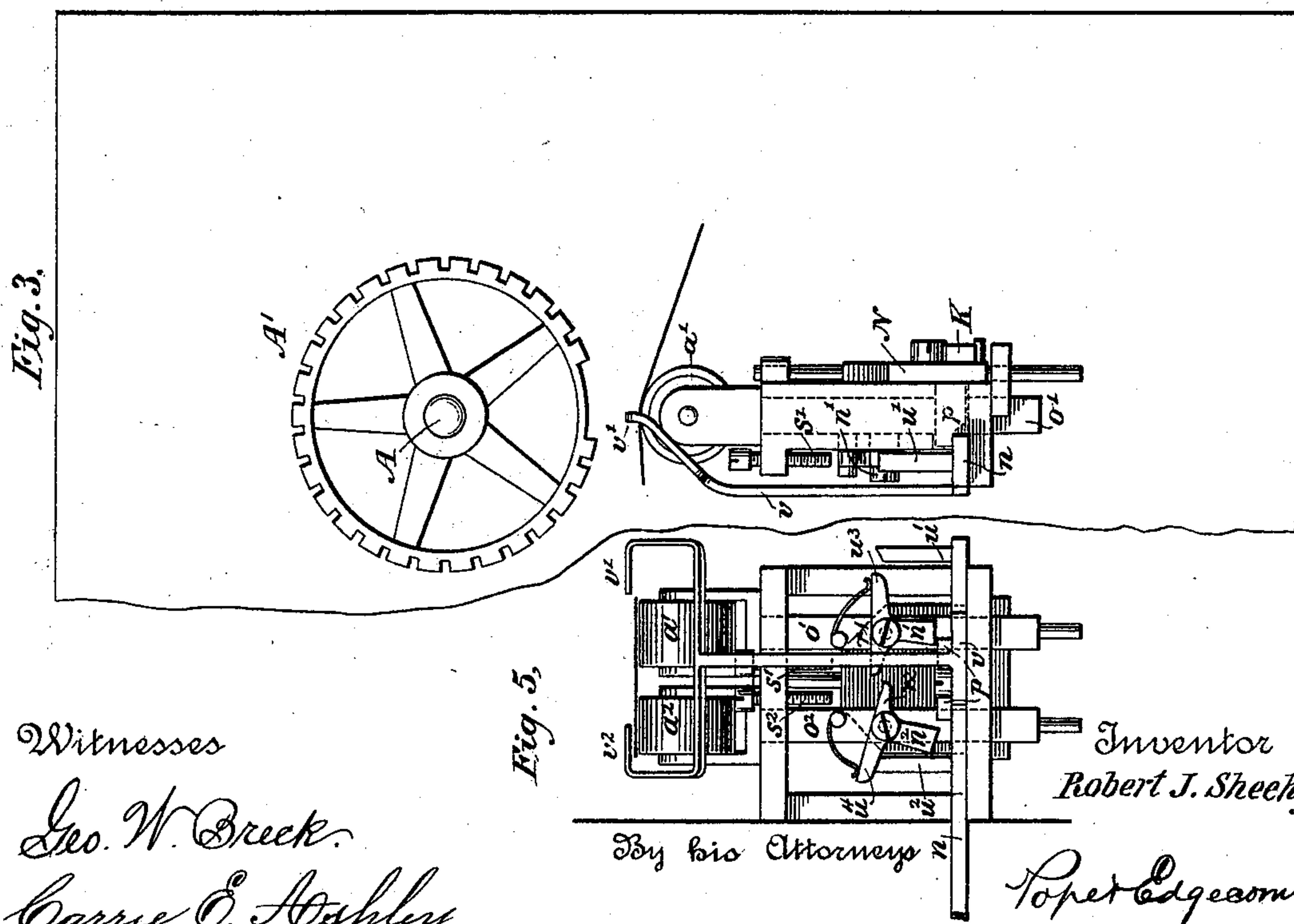
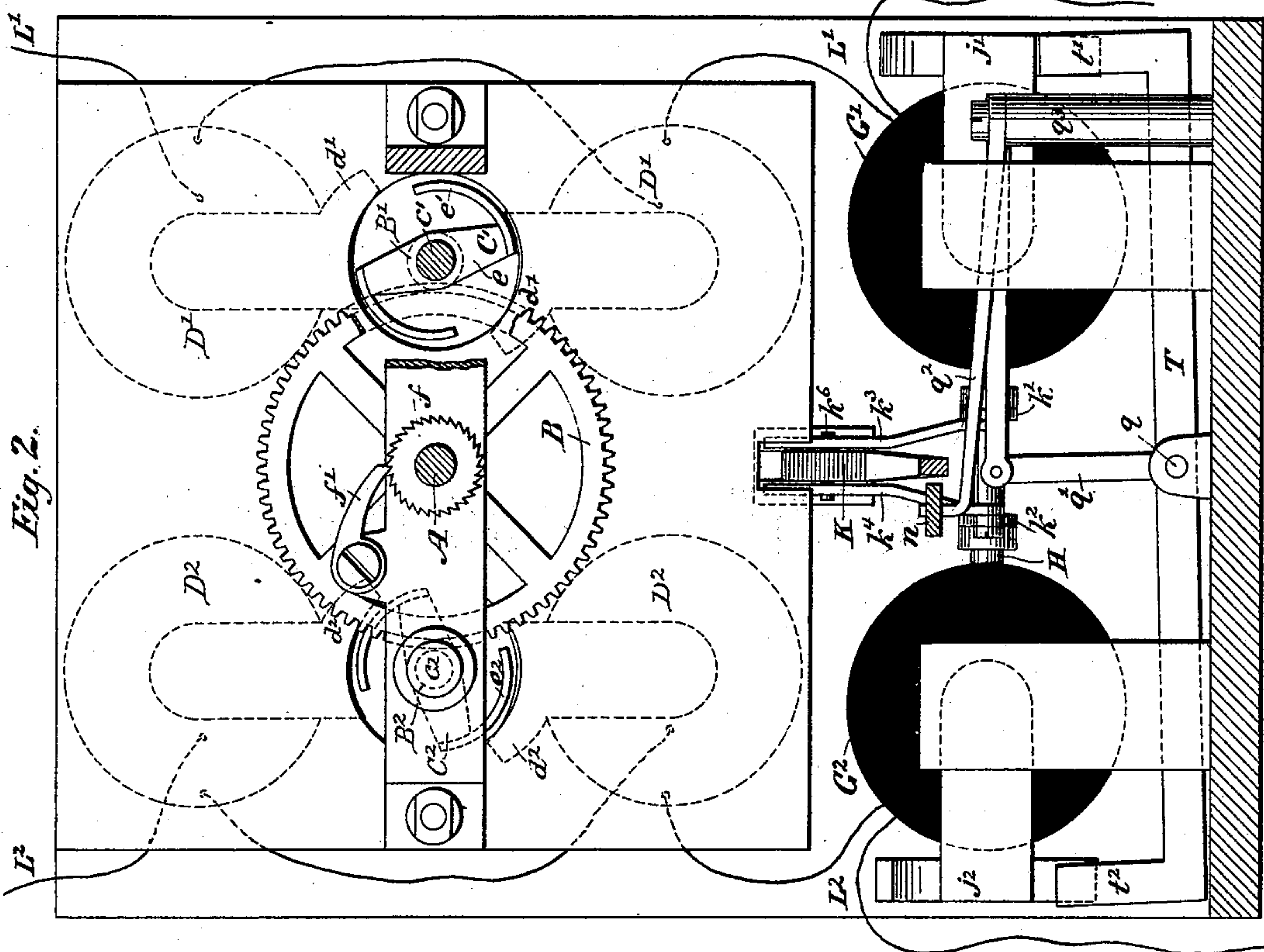
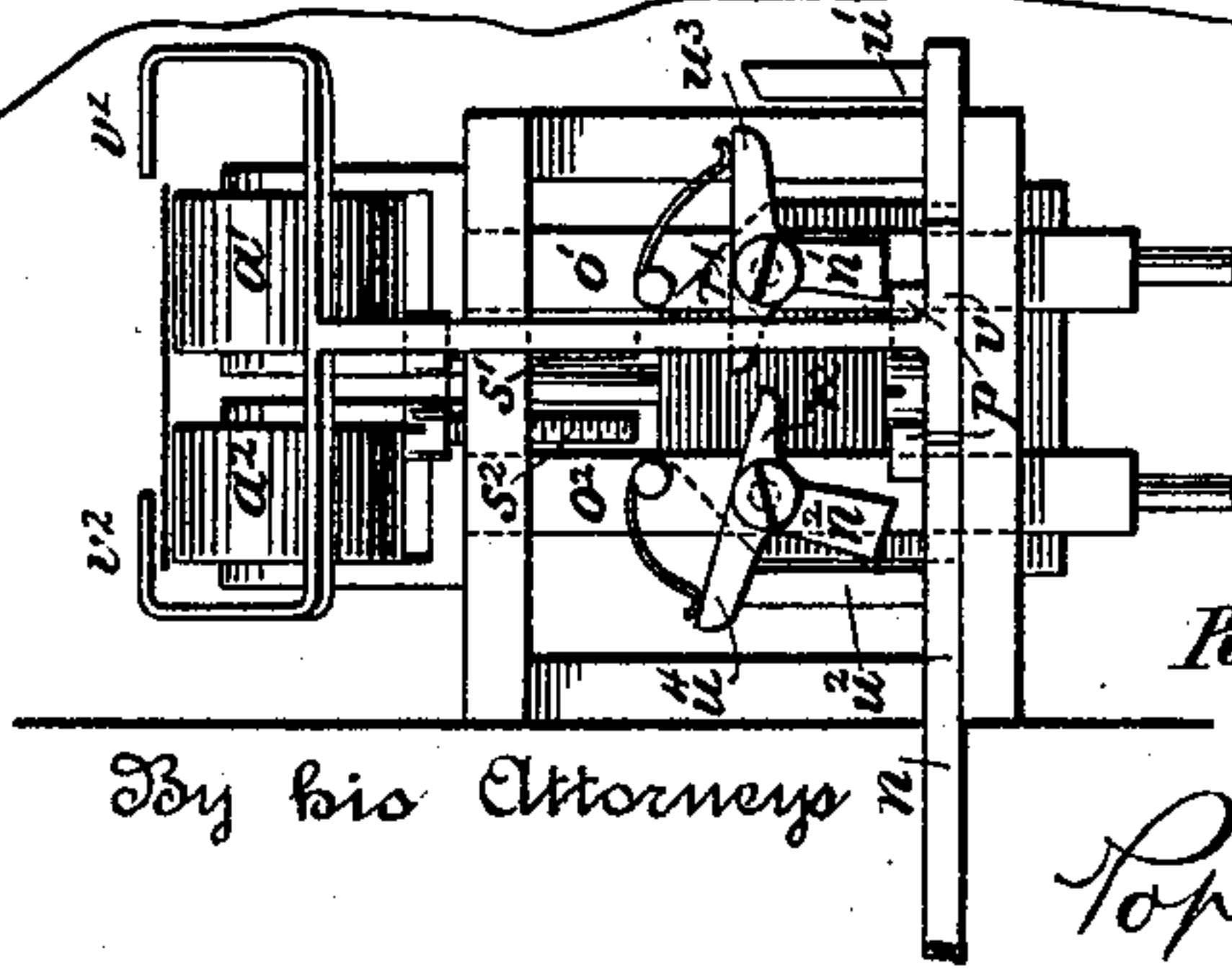


Fig. 5.



Witnesses

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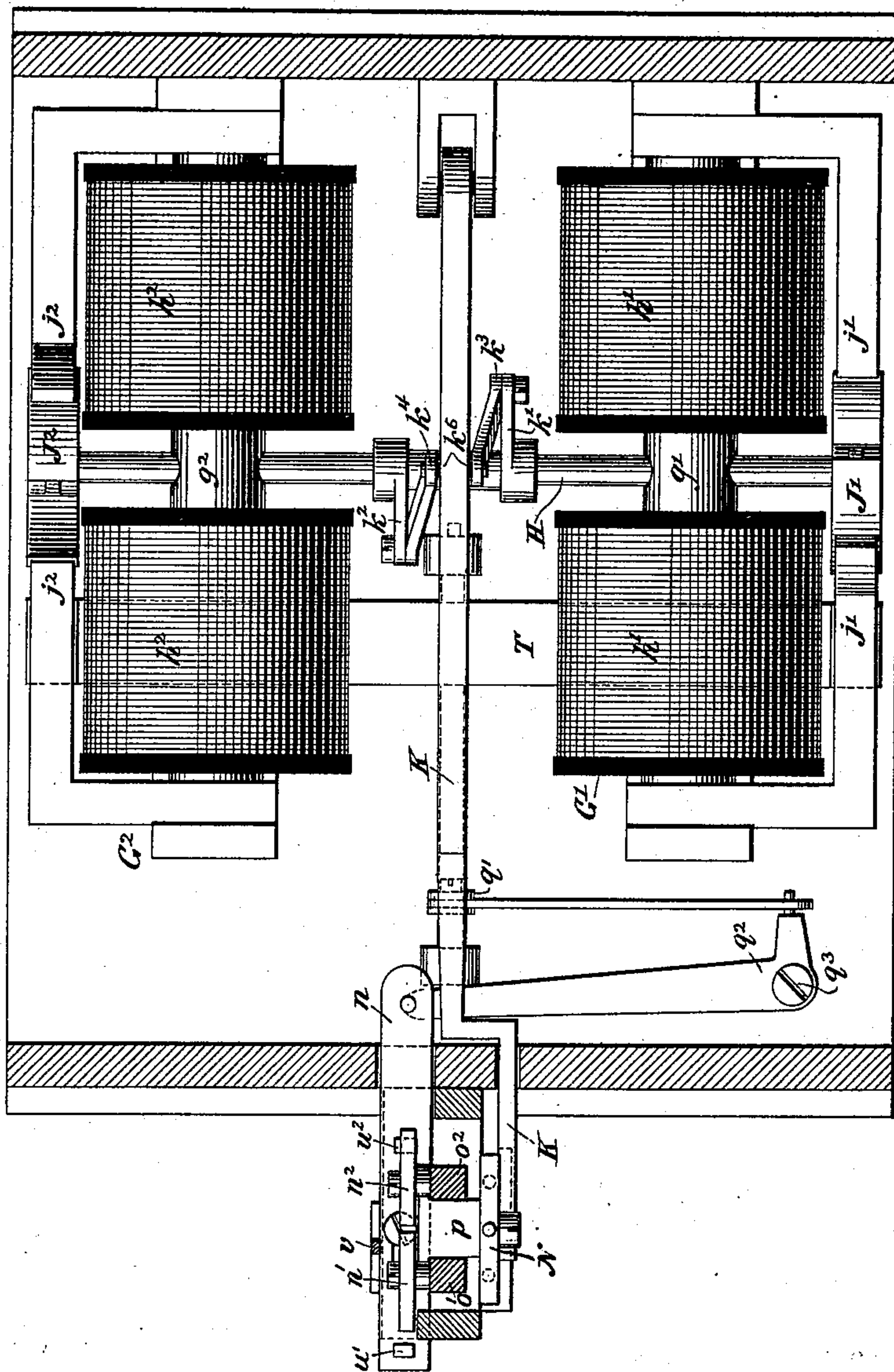
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Fig. 4.



Witnesses

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UNITED STATES PATENT OFFICE.

ROBERT J. SHEEHY, OF NEW YORK, N. Y., ASSIGNOR, BY MESNE ASSIGNMENTS, TO WENDELL GOODWIN, OF SAME PLACE.

PRINTING-TELEGRAPH.

SPECIFICATION forming part of Letters Patent No. 506,269, dated October 10, 1893.

Application filed March 11, 1886. Renewed March 15, 1893. Serial No. 466,169. (No model.)

To all whom it may concern:

Be it known that I, ROBERT J. SHEEHY, a citizen of the United States, residing in New York, in the county and State of New York, have invented certain new and useful Improvements in Printing-Telegraphs, of which the following is a specification.

The invention relates to the class of apparatus employed for printing messages and dispatches, from one or more type-wheels, revolved by means of electric currents transmitted from a distant station.

The object of the invention, is to provide an instrument capable of efficient work, which is rapid and noiseless in its operation, and is driven without the use of weights and springs such as are usually employed in this class of instruments.

In general terms the invention consists in organizing a printing instrument in substantially the following manner:—The type-wheels are mounted upon a shaft which is driven by means of two revolving armature-levers, alternately acted upon by two independent electro-magnets. These electro-magnets are included in independent circuits and are designed to be alternately vitalized. One electro-magnet, with its armature-lever, serves to advance the type-wheel shaft a distance corresponding to one type. The other electro-magnet is then vitalized and the consequent movement of its armature-lever advances the type wheel another equal space, at the same time advancing the first armature-lever a corresponding distance, so that when its magnet is subsequently vitalized its armature-lever is again advanced by the attraction of the magnet. In this manner the type-wheel shaft is advanced step-by-step, under the control of the transmitting instrument. Impressions are preferably taken from either of the two type-wheels at will, by means of a press-lever which is actuated by a current of the proper character, transmitted through either of two electro-magnets. These press-magnets are respectively included in the two line wires, and when the type-wheels have been placed in any required position, by means of a current through either of the type-wheel electro-magnets, then either a prolonged current or

a current of increased strength is caused to traverse the same line wire, and this serves to vitalize the corresponding press-magnet. This press-magnet acts upon an armature-lever similar to those employed for revolving the type-wheels, and, through a suitable system of levers, actuates the press-lever. Both the press-magnets are constructed in the same manner and either one serves to operate the press-lever.

For the purpose of printing from one or the other type-wheel, as desired, a shifting device operated by a polarized armature is employed. The type-wheels may be driven by currents of either polarity, and in like manner the printing may be effected regardless of the polarity of the currents; but currents of one polarity will move the polarized shifting armature in one direction, and currents of the other polarity will move it in the opposite direction. The special devices operated by this armature will be described in detail, in connection with the drawings.

In the drawings, Figure 1 is a side elevation, partly in section, of an instrument embodying the features of the invention. Fig. 2 is a transverse section of the same. Fig. 3 is an elevation of the front of the instrument. Fig. 4 is a plan view of the same and Fig. 5 illustrates certain details.

Referring to the figures, A' and A^2 represent two type-wheels, the former of which is designed to carry essentially numerals, and is termed the figure type-wheel, and the latter carries letters. These wheels are mounted upon a shaft A . The shaft carries a toothed wheel B which meshes with two pinions B' and B^2 . The pinion B' is carried upon an arbor c' , carrying an armature C' . The pinion B^2 is carried upon an arbor c^2 , carrying an armature C^2 . Two electro-magnets D' and D^2 , respectively included in main lines L' and L^2 , act upon the armatures C' and C^2 . The armatures are each constructed, with forwardly projecting arms e' , e^2 which are preferably curved in arcs of circles slightly eccentric, with reference to the centers of the arbors, so that the ends of the arms e' , e^2 are nearer the centers of the arbors, than the ends of the arms e , from which they extend. The ends

of the arms e may with advantage be curved to conform with arcs of circles, concentric with the centers of the arbors. The pole-pieces of the electro-magnets D' and D^2 extend laterally toward the corresponding armatures, and they are preferably prolonged upon one side forming sections of circular fields, for the armatures, as shown at d' , d' and d^2 , d^2 . The armatures are so placed with reference to the pinions meshing with the wheel B, that when one armature is drawn into its closest proximity to the poles of the electro-magnet, then the other armature will be away from the poles of its electro-magnet, and thus when one armature is in position to be attracted by its electro-magnet, the other will be in a position of rest, with reference to its magnet. The peculiar form of the armature-levers and the pole-pieces insures that, when the magnets are alternately vitalized, they will be driven forward step-by-step, thus advancing the type-wheel shaft. A ratchet wheel f , upon the shaft A, and a pawl f' prevent a backward movement of the type-wheel shaft. Two press-magnets G' and G^2 are also respectively included in the lines L' and L^2 . These magnets are constructed with single straight cores g' and g^2 respectively, and surrounding coils h' h' and h^2 h^2 . The coils are preferably separated slightly at the centers of the cores, for the purpose of allowing a rock-shaft H to pass between them. This shaft carries two armatures J' and J^2 , which are respectively applied to polar extensions j' j' and j^2 j^2 , of the electro-magnets G' and G^2 . These extensions are brought from the respective poles of the corresponding magnets, in a direction parallel to the cores, and are prolonged and curved at their ends in a manner similar to the extensions of the magnets D' and D^2 . The armatures J' and J^2 are similar in construction to the armatures C' and C^2 , but they are so placed upon the shaft J, that when the magnet G' is vitalized, the shaft will be turned in one direction and when the magnet G^2 is vitalized it is turned in the opposite direction. It is not designed to complete a revolution, however, but after the attraction of one or the other of the magnets, it is returned to its normal position by means of a spring or weight t applied to a press-lever K. The rock shaft H, carries two oppositely projecting arms k' and k^2 , to the ends of which two links k^3 and k^4 are pivoted. These links are respectively connected, by means of slots k^5 and pins k^6 with the lever K, so that whenever the shaft H is moved by either armature, the lever K will be actuated. The weight of the lever, assisted by a spring t if it is desired, returns the lever to its normal position, when the armatures are released, and at the same time returns the shaft H to its normal position. The lever K serves to actuate a press-mechanism consisting of two printing-platens a' and a^2 , respectively applied to the two type-wheels A' and A². One or the other of these platens is raised accordingly,

as a movable arm n is in the position shown in the drawings, or in a reverse position. The press-lever when actuated raises a plate N carrying a lug p . This is designed to engage one or the other of two pawls n' or n^2 which are pivoted to the respective rods o' and o^2 which carry the platens. One or the other of these pawls is tilted so that it will not be engaged by the lug p accordingly as the rod n is in the position shown in Fig. 5 or the reverse. This is accomplished by means of two arms u' and u^2 carried by the rod and respectively engaging arms u^3 and u^4 upon the pawls. When the rod n is in the position shown, then the arm u^2 engages the arm u^4 and throws the pawl n^2 out of the path of the lug p . When the arm is moved in the opposite direction the arm u' engages the arm u^3 and tilts the pawl n' out of the path of the lug. At the same time the pawl n^2 is released. In this manner one or the other of the platens will be thrust against its type-wheel, each time the press-lever is actuated.

For the purpose of releasing the platens when an impression is effected the pawls n' and n^2 are respectively constructed with arms r' and r^2 , which are respectively engaged by adjustable banking screws s' and s^2 . When the platens have thrust the paper against the type-wheels, these screws trip the pawls from the lug p , and allow the corresponding platen to fall immediately even though the press-lever may remain up.

The position of the rod n , is determined by means of a polarized armature T supported at its center by an arbor q . The respective poles t' and t^2 of this armature are extended into proximity to the extension of one pole of each electro-magnet G' and G^2 . When either magnet is vitalized by a current of a given polarity, then the armature T will be rocked in a given direction, but when it is vitalized by a current of the opposite polarity, then the armature will be rocked in the opposite direction, and in whichever position it is placed it will remain until the direction of the current is reversed; so that if the instrument is operated by currents of one polarity, the armature will be in one position, but if operated by currents of the other polarity, the armature will be placed in the opposite position. As already stated, the instrument may be operated by currents of either polarity at will. The arbor q carries an arm q' , which is linked to an angle-arm q^2 supported upon a pivot q^3 . This in turn is connected with the rod n , and thus the movements of the rod n are controlled by the armature T, so that when it is desired to print from one type-wheel, the instrument is operated by currents of a given polarity, and when it is desired to print from the other wheel, the instrument is operated by currents of the opposite polarity.

It is designed that any suitable form of transmitting apparatus shall be employed for sending currents required for operating the instrument. In the drawings there is shown

a theoretical diagram, illustrating a method of organizing apparatus for transmitting the required currents. In this diagram, R' represents a key for transmitting currents from a battery O upon the lines L' and L^2 alternately, and R^2 represents a key for increasing the strength of the current at any time sent to either line, by cutting out a resistance R . A current-reversing or pole-changing switch R^3 serves to determine the polarity of the current sent to line.

For the purpose of preventing the paper from being thrust against one wheel when an impression is being taken from the other an arm v having two fingers v' and v^2 is employed. This arm is attached to the rod n and moves back and forth with it. When the parts are in position to operate the platen a' the finger v^2 is above the edge of the paper over the platen a^2 , so that as the platen a' carries the paper against the wheel A' , it is held back from the wheel A^2 . When the rod n is moved in the opposite direction, the finger v' holds the paper away from the type-wheel A' .

I claim as my invention—

1. The combination of two main lines, two electro-magnets respectively included therein, two armatures respectively applied to said electro-magnets, a type-wheel shaft and two type-wheels thereon revolved by the alternate actions of said electro-magnets, two press-magnets respectively included in said main lines, a single press-lever acted upon by either of the press-magnets, and a polarized armature applied to the last named electro-magnets, for determining from which of said type-wheels an impression shall be effected.

2. The combination of two independent electro-magnets, two armatures respectively applied thereto, their respective shafts, a type-wheel shaft and a mechanical connection between said armatures and said type-wheel shaft, whereby each armature is alternately advanced by a vitalization of its electro-magnet and by the action of the other armature, through the type-wheel shaft and said mechanical connection, substantially as described, two type-wheels upon said type wheel shaft, and means, substantially as described, for effecting impressions from said type-wheels.

3. The combination with a type-wheel shaft, of two independent electro-magnets, two armatures respectively controlled by said electro-magnets, for advancing said shaft, two armature-shafts respectively carrying said armatures, and a connection between the armature-shafts whereby each armature is alternately advanced by the operation of the other armature, and by the action of its own electro-magnet, and two type-wheels upon said type-wheel shaft, and means, substantially as described, for effecting impressions from said type-wheels.

4. In a printing telegraph instrument, the combination of two electro-magnets, two magnetically independent revolving armatures

respectively applied thereto, a type-wheel, its shaft, and a gear connection between said armatures and said shaft.

5. The combination of a type-wheel shaft, a gear-wheel upon said shaft, two revolving armatures, their arbors, pinions upon said arbors meshing with said gear-wheel, two electro-magnets alternately acting upon said armatures, a press-mechanism, and means for actuating said mechanism operated by a current transmitted through either of said electro-magnets.

6. The combination of a type-wheel shaft, two electro-magnets in independent circuits for revolving said shaft, two press-magnets respectively included in said circuits, a press-lever, an oscillating shaft for operating said press-lever, and two oscillating armatures for operating said oscillating shaft.

7. The combination, substantially as hereinbefore set forth, of two type-wheels, means for determining the position of the same, two printing-platens, a single press-lever, two independent press-magnets respectively adapted to operate said press-lever, and armatures applied to said electro-magnets for determining which of said platens shall be actuated.

8. The combination of a press-lever, an electro-magnet having polar extensions projecting toward each other, a centrally pivoted armature within the field of said extensions, and a connection between said armature and lever, substantially as described.

9. The combination, substantially as hereinbefore set forth, of two electro-magnets, a press-lever actuated by either electro-magnet, a polarized armature applied to both magnets and a shifting device operated by said polarized armature.

10. In a printing telegraph instrument, the combination of single press-lever, two electro-magnets, and their armatures for operating said lever, polar extensions to said electro-magnets, a polarized armature applied to said extensions, a platen-shifting bar, and a mechanical connection between said bar and polarized armature, substantially such as described.

11. The combination, substantially as hereinbefore set forth, of an oscillating shaft, two electro-magnets, either of which may operate such shaft, a press-lever, and two links connecting such shaft with said press-lever, substantially as described.

12. In a printing-telegraph instrument, two armatures, and two electro-magnets for operating the same, a single press-lever, a link connection between said armatures, and said lever, and type-wheels from which impressions are taken, by the action of said lever.

13. The combination of two type-wheels, two printing-platens, a single press-lever, two independently movable rods carrying said platens, two pawls respectively pivoted to said rods and actuated by said press-lever, and mechanism for throwing either pawl out of engagement with said lever at will.

14. The combination, substantially as here-
inbefore set forth, of two type-wheels, two
platens applied thereto, a press-lever, two
pawls respectively designed to actuate said
5 platens, means for throwing either of said
pawls into engagement with said press-lever
and at the same time disengaging the other
therefrom.

15. The combination, substantially as here-
10 inbefore set forth, of a type-wheel, a printing
platen, its lever, a mechanical connection be-
tween the platen and lever, and a tripping de-
vice for releasing the platen from the lever
when an impression is effected.

15 16. The combination, substantially as here-
inbefore set forth, of two type-wheels, two
independently movable platens, a platen
shifting device for causing one or the other
of the platens to be operated at will, a later-
20 ally movable paper guard having two fingers
extending above the edges of the paper, and
means whereby said guard is moved laterally
by the moving platen-shifting device to in-
terpose one finger between one type-wheel
25 and the corresponding edge of the paper and
simultaneously move the other finger from
between the other type-wheel and the other
edge of the paper, and vice versa, according

to the direction in which the platen shifting
device is operated. 30

17. The combination, substantially as set
forth, of two type-wheels, two independent
main lines, two independent electro-magnets
respectively included in said main lines, the
armatures of said magnets adapted to alter- 35
nately impart impulses of rotation to said type-
wheels, means for transmitting impulses of
electricity alternately over the two main lines
to advance the type-wheels step by step, an
independent press magnet in each main line, 40
a press-lever operated thereby, a platen shift-
ing-device, means for operating the shifting-
device in one direction by a printing current
of one polarity over either line and in the
opposite direction by a printing current of 45
opposite polarity over either line, and means
for transmitting over either line printing cur-
rents of either polarity.

In testimony whereof I have hereunto sub-
scribed my name this 18th day of February, 50
A. D. 1886.

ROBERT J. SHEEHY.

Witnesses:

DANL. W. EDGECOMB,
CHARLES A. TERRY.