

No. 743,948.

PATENTED NOV. 10, 1903.

W. S. STELJES.
PRINTING TELEGRAPH.

APPLICATION FILED MAY 12, 1903.

NO MODEL.

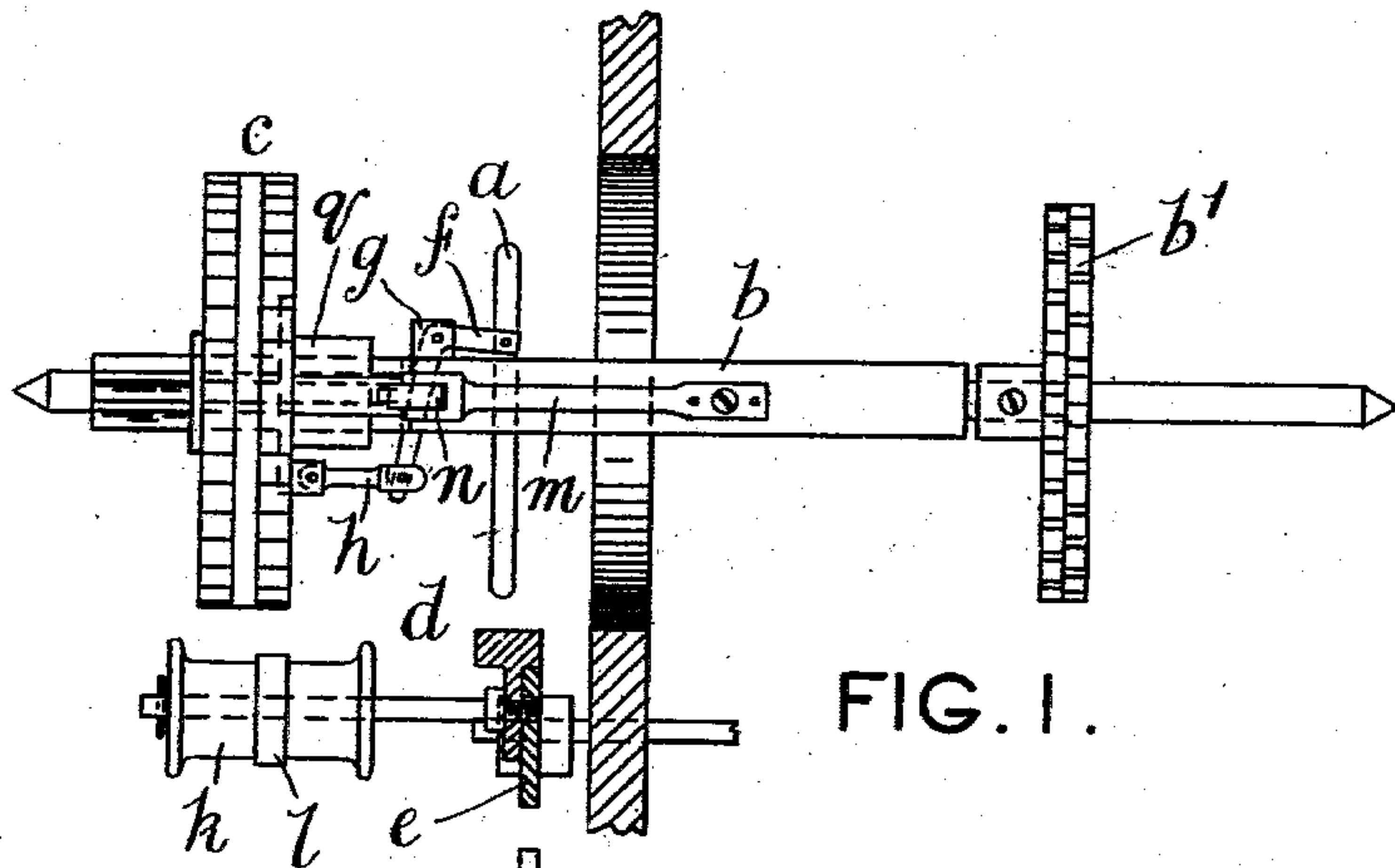


FIG. 1.

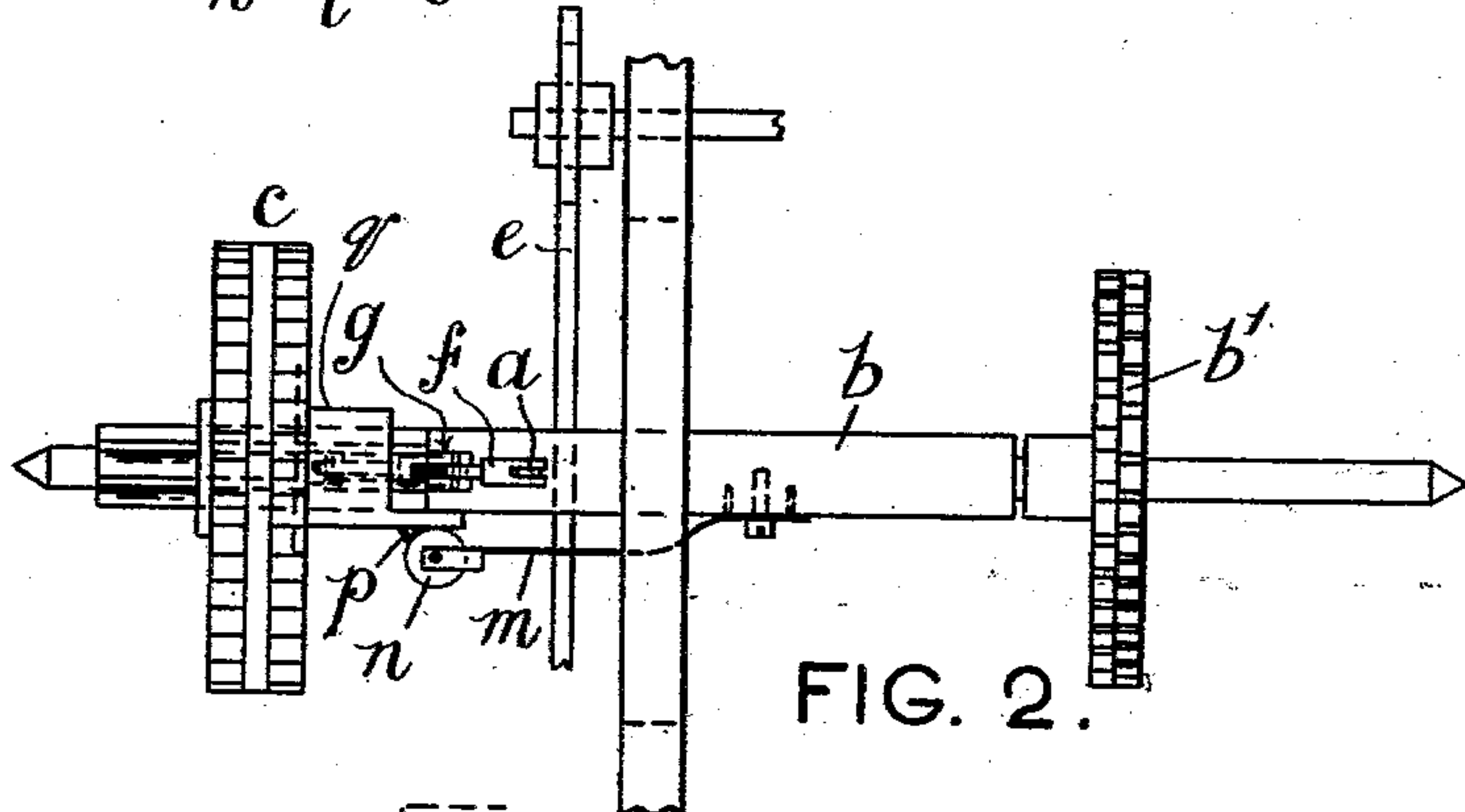


FIG. 2.

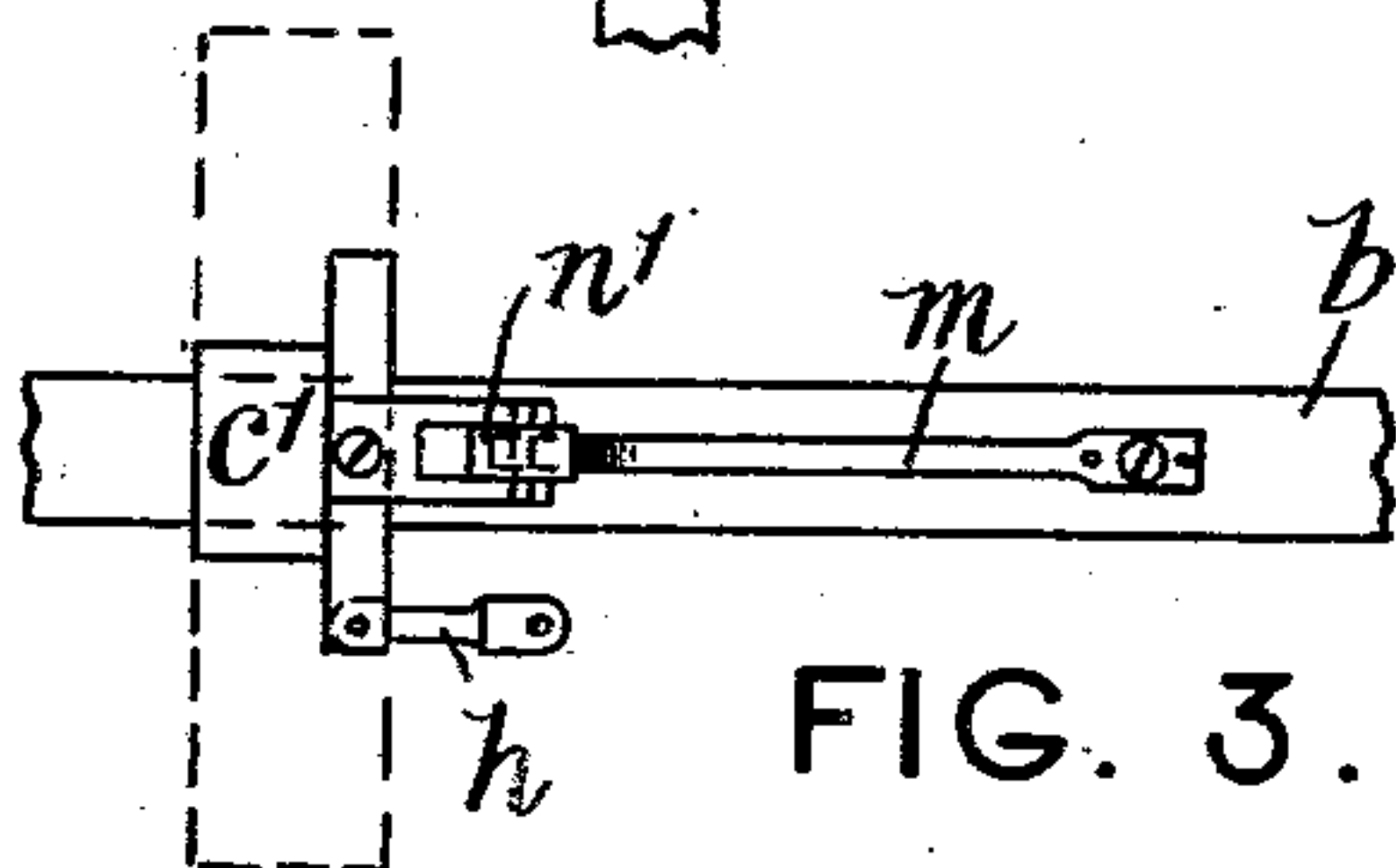


FIG. 3.

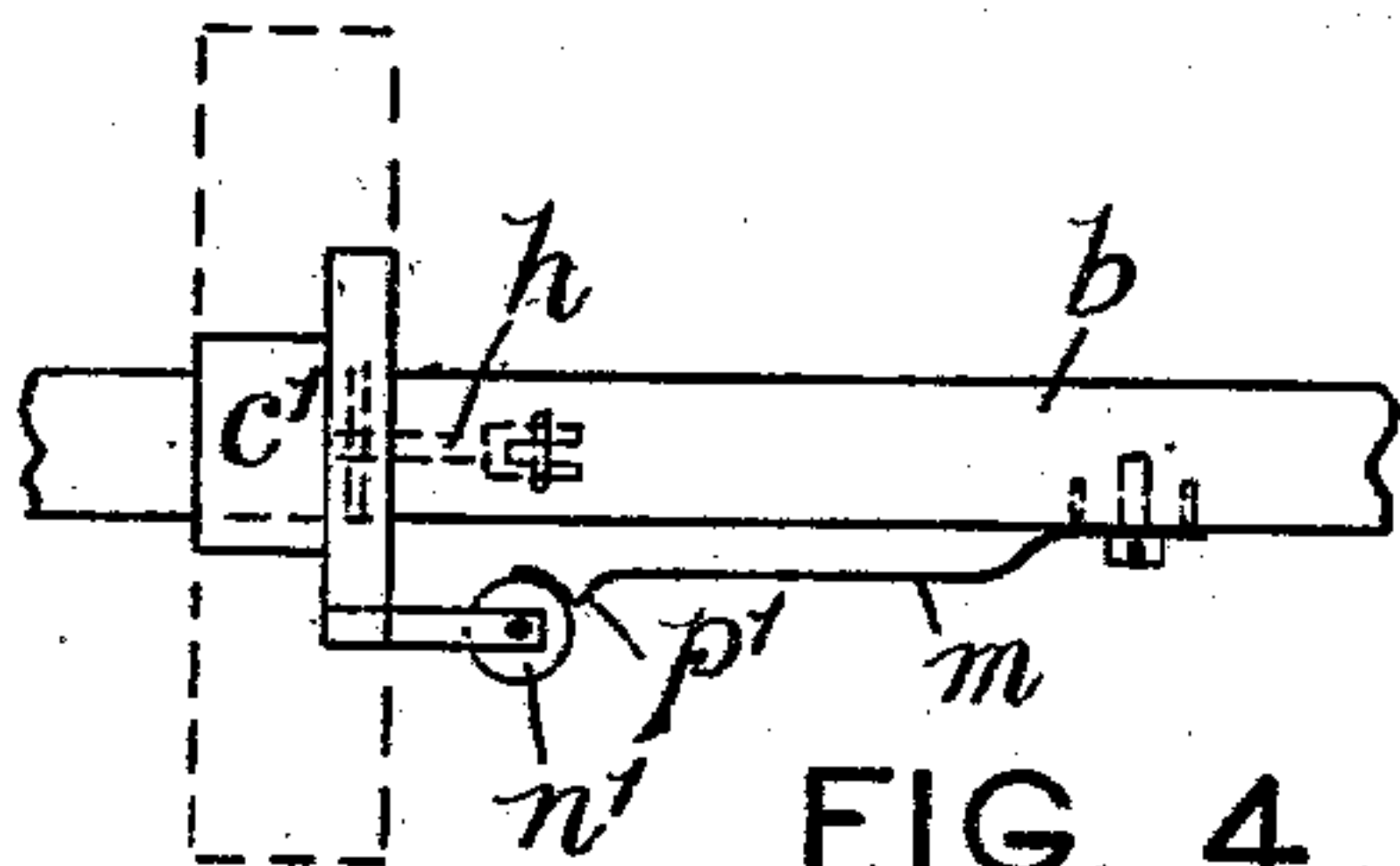


FIG. 4.

WITNESSES

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PRINTING-TELEGRAPH.

SPECIFICATION forming part of Letters Patent No. 743,948, dated November 10, 1903.

Application filed May 12, 1903. Serial No. 156,807. (No model.)

To all whom it may concern:

Be it known that I, WALTER SAMUEL STELJES, a subject of the King of Great Britain and Ireland, residing at London, England, have
5 invented a new and useful Improvement in Printing-Telegraphs, of which the following is a specification.

This invention relates to type-writing telegraph-receiving instruments; and it consists
10 in an improved device for moving longitudinally upon its spindle and for holding in its required position a type-wheel having two or more annular series of letters, numerals, or signs upon its periphery, so as to bring any
15 required annular ring of letters, signs, or numerals into the desired position for printing and to retain the wheel in such position against accidental disturbance with a minimum amount of effort by the operative mechanism to effect such movement and with the
20 least tendency to disturb the plane of the wheel.

In type-writing telegraph-receiving instruments it is usual to utilize a movement of the
25 printing-lever (without effecting printing by reason of a blank in the periphery of the type-wheel) to effect the longitudinal change movement of the wheel upon its spindle to bring one of the alternative annular rows of figures, letters, or signs upon the periphery of
30 the wheel opposite to the printing-line. This is effected, as is well known, by the operation of respective change-keys on such a transmitter as the Wheatstone transmitter, and it
35 is obvious that various alternative changes of position of the type-wheel, which may thus be provided with multiple annular series of letters, numerals, or signs, may be effected by providing a corresponding number of change-
40 keys at various points of the transmitter-dial.

It is of importance to the operation of the receiver under as minute electrical currents of transmission as possible that the operation
45 of the longitudinal movement of the type-wheel upon its spindle by the movement of the printing-lever and its ultimate retention in the required position against accidental disturbance shall be effected with as small a movement of the printing-lever as possible
50 and with the least possible frictional resistance either during the longitudinal movement of the wheel upon its spindle or during

after-retention in position while the wheel is revolving with its spindle.

The present invention, of which the following is description, has been devised to realize these desiderata.

Figure 1 is an elevation of the type-wheel spindle of a type-writing telegraph-receiving instrument with my improved type-wheel-shifting gear applied thereto. Fig. 2 is a plan of the same. Figs. 3 and 4 are two views in plan and elevation of a modified arrangement of the holding device when the wheel has
60 been shifted.

b is the usual spindle in a type-writing receiving-telegraph instrument fluted so as to carry a type-wheel *c* with free longitudinal motion upon the said spindle, but revolving with the said spindle under the control of
65 step-by-step wheels *b'*, so as to be set at any required position for the printing of a particular sign, letter, or mark in manner well known. The wheel *c* is provided with two rings of letters, numerals, or signs to effect
70 the printing, from either of which the wheel must be moved longitudinally on the spindle.

A flat pin *a* is provided traversing a slot in the spindle *b* of the type-wheel *c*, and thus projecting vertically from the spindle on either
80 side. This flat pin is situated exactly over a suitable projection *d* on the printing-lever *e*, so that the said pin *a* is moved in one direction or the other perpendicularly to the spindle, according to whether the type-wheel
85 is set by the transmitter with one end or the other end of the said pin *a* pointing downward toward the uprising printing-lever *e*. The said vertically-sliding spindle-pin *a* is pivoted to the short end of a bell-crank *f*, having
90 its fulcrum in a short bracket *g* on the said spindle *b*; the longer arm of the said bell-crank *f* also passing through a slot in the spindle *b*, so that the end of the longer arm of the bell-crank is still situated close to
95 the hub of the type-wheel *c*, to which it is connected by a pivoted link *h*. The thrust or pull of such link *h* to produce longitudinal movement of the type-wheel *c* upon its spindle *b* is therefore close to the axis of motion
100 and tends as little as possible to cant the type-wheel *c*, and therefore obtains the resulting movement with least frictional resistance within the hub of the type-wheel. This ar-

5 arrangement provides for two distinct and positive longitudinal movements of the type-wheel upon its spindle backward and forward without the resistance of any reacting spring, according to whether the type-wheel is set at alternative ends of one diameter over the printing anvil-roller *k* and the printing-lever *e*.

10 In order to determine with no frictional resistance to the normal rotation of the type-wheel and its spindle together a stable position of the type-wheel against accidental disturbance in either of its alternative longitudinal positions relative to the printing-line *l*, the following device is employed: Upon the spindle *b* is riveted a long delicate flat spring *m*, having an antifriction-roller *n* at its free end normally resting upon a flat place on the hub of the type-wheel *c*. The hub is provided with a short projecting pin or cone-stud *p*, directly in the line of the longitudinal travel of the hub under the roller end of said fixed spring *m*. The type-wheel, therefore, to change its position either way longitudinally on the spindle lifts the roller end of the spring *m* by the said cone-stud *p* passing under it, and the position of stable rest is when the cone-stud is on either side of the spring-roller between the collar *q* and the bracket *g* on the spindle as limits of extreme travel. The cone-stud therefore checks any accidental tendency of the type-wheel to move from its required position under vibration and yet does not offer any frictional resistance to the rotation of the type-wheel with the spindle, nor does it tend in any way to put a cant onto the type-wheel when the latter is at rest for printing purposes. An equivalent but modified form of detent is shown in Figs. 3 and 4. The spring *m* terminates in a projecting nose *p'*, and the roller *n'* is fixed to the hub *c'* of the type-wheel, the nose *p'* of the spring *m* thus passing under the fixed roller *n'* instead of the latter being affixed to the end of the spring.

45 Although the device has been described as effecting only one backward and forward positive longitudinal motion of the type-wheel upon its spindle, it is obvious that by multiplication of the operating device at different angles upon the spindle and by providing a series of cone-studs under the detaining-spring a series of successive longitudinal movements forward and backward of a disk with multiple annular series of letters, signs, or numerals can be obtained.

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

60 1. In a type-writing telegraph-receiving instrument, in combination, a spindle adapted to carry a type-wheel free to move longitudinally on said spindle but revolving therewith; an oscillating printing-lever; a flat pin extending

tending transversely to the spindle through a slot therein, in position to contact with the ascending printing-lever; a bell-crank, pivoted to said transverse pin, fulcrumed upon the spindle and having its longer arm passing by a slot through the said spindle; a connecting pivoted link between the longer end of the said bell-crank and the hub of the type-wheel; and means for the arrest of the type-wheel after its longitudinal movement against jar or vibration.

2. In a type-writing telegraph-receiving instrument in combination a spindle adapted to carry a type-wheel free to move longitudinally on the said spindle but revolving therewith; an oscillating printing-lever; means for shifting the said type-wheel longitudinally on the said spindle by the action of the rising printing-lever; a flat spring affixed at one end to the type-wheel spindle; and a roller and cone projection carried upon the free end of the spring and the hub of the type-wheel, respectively, the coned projection being adapted to pass under the roller from side to side, as the wheel moves longitudinally on its spindle.

3. In a type-writing telegraph-receiving instrument in combination, a spindle adapted to carry a type-wheel free to move longitudinally thereon but revolving therewith; an oscillating printing-lever; means for shifting the said type-wheel longitudinally on the said spindle by the action of the rising printing-lever; a flat spring affixed at one end to the type-wheel spindle, having a cone projection at its free end; and a roller carried on the type-wheel hub adapted to pass over the said cone projection from side to side as the wheel moves longitudinally on its spindle.

4. In a type-writing telegraph-receiving instrument in combination, a spindle adapted to carry a type-wheel free to move longitudinally thereon but revolving therewith; an oscillating printing-lever; a flat pin extending transversely to the spindle through a slot therein, in position to contact with the ascending printing-lever; a bell-crank pivoted to said transverse pin, fulcrumed upon the spindle and having its longer arm passing by a slot through the said spindle; a connecting pivoted link between the longer end of the said bell-crank and the hub of the type-wheel; a flat spring affixed at one end to the type-wheel spindle, having a cone projection at its free end; and a roller carried on the wheel-hub adapted to pass over the said cone projection from side to side, as the wheel moves longitudinally on its spindle.

In witness whereof I have hereunto set my hand in presence of two witnesses.

WALTER SAMUEL STELJES.

Witnesses:

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