

(Model.)

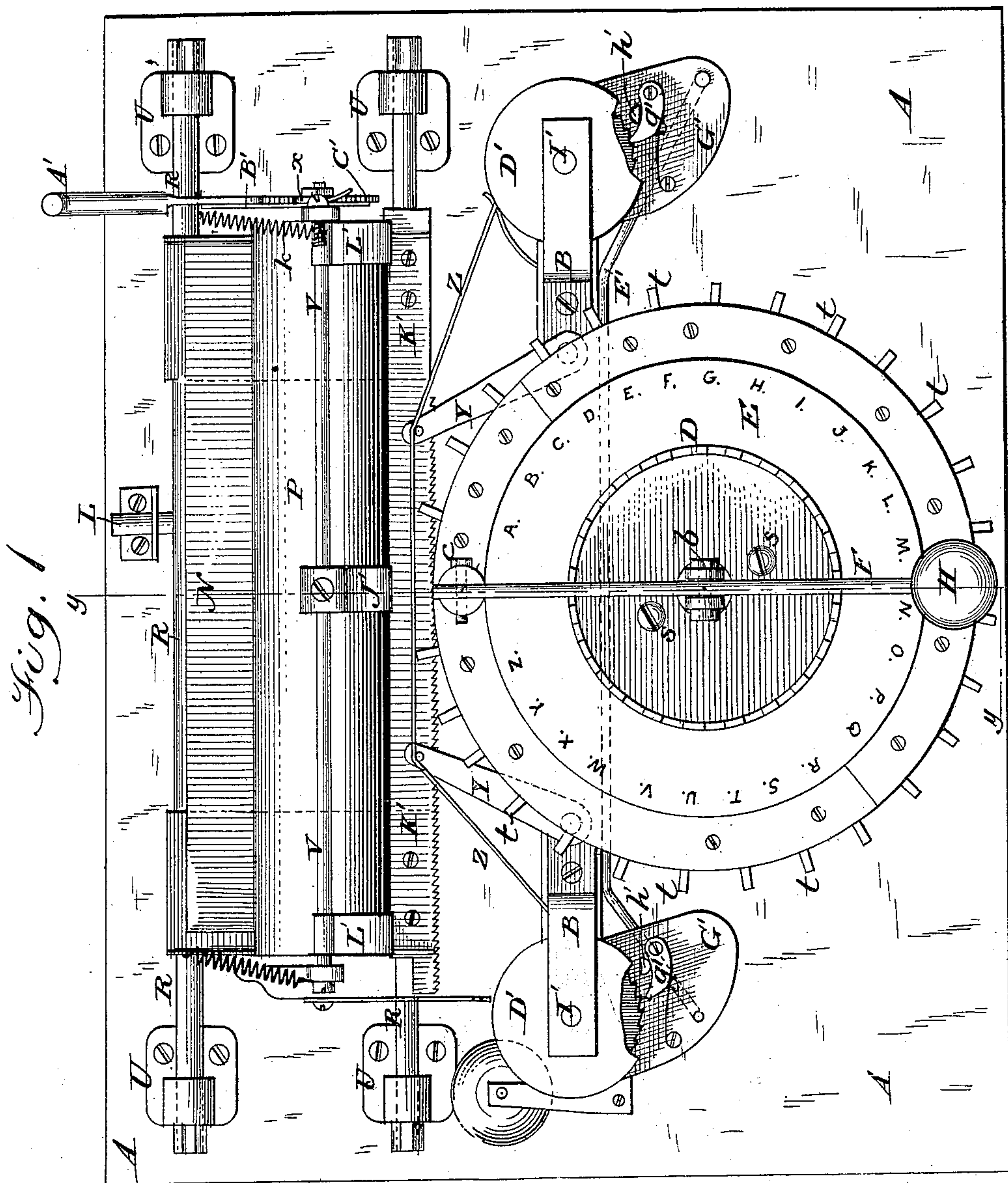
3 Sheets—Sheet 1.

J. F. LINDGREN.

TYPE WRITER.

No. 246,960.

Patented Sept. 13, 1881.



Witnesses;

Charles Fowler,
W. H. Kuntzmann,

Inventor;

Justus F. Lindgren,
By his Attorneys,
Stansbury & Kunn

(Model.)

3 Sheets—Sheet 2.

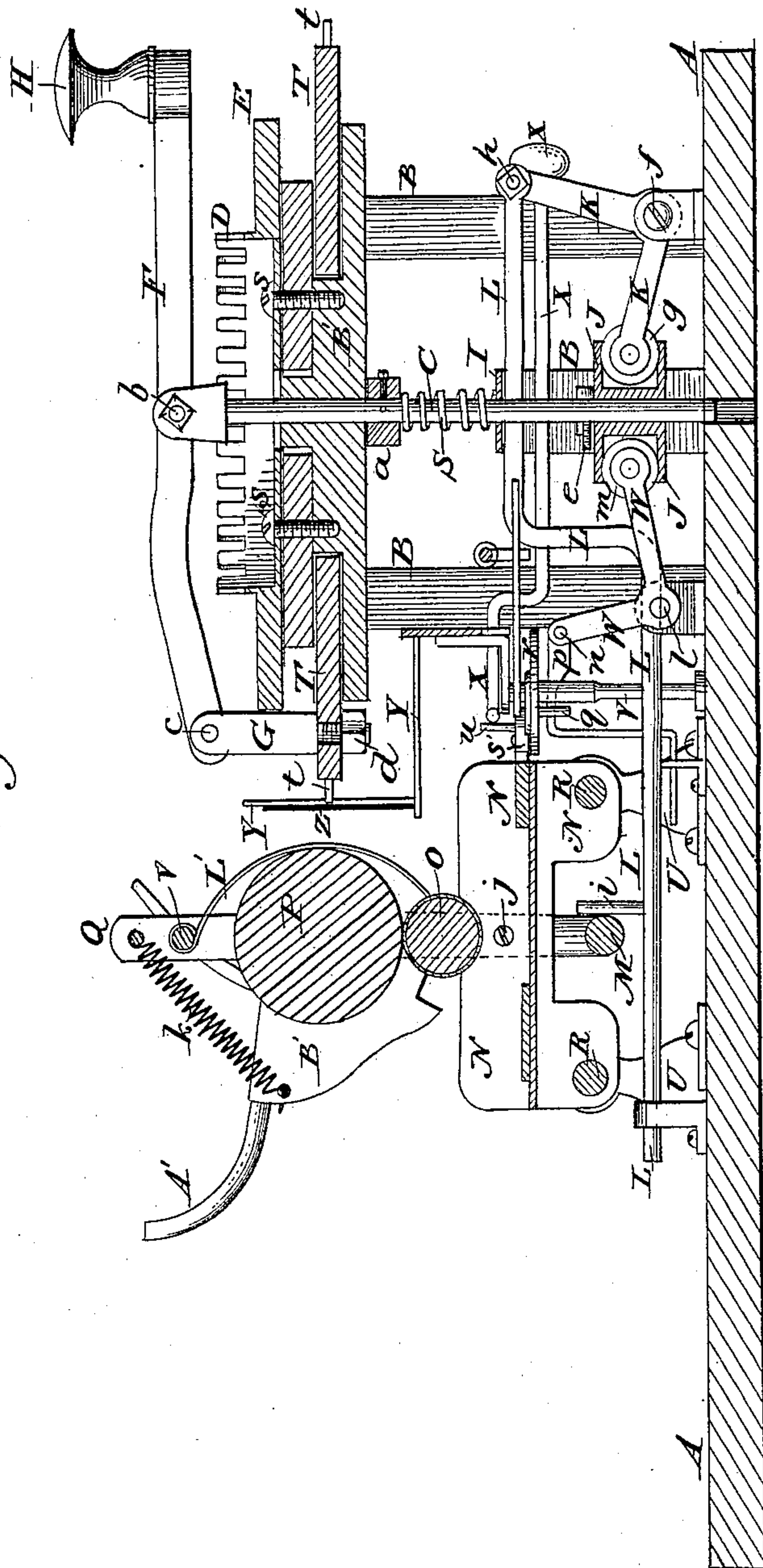
J. F. LINDGREN.

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No. 246,960.

Patented Sept. 13, 1881.

Fig. 2.



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(Model.)

3 Sheets—Sheet 3.

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Fig. 3.

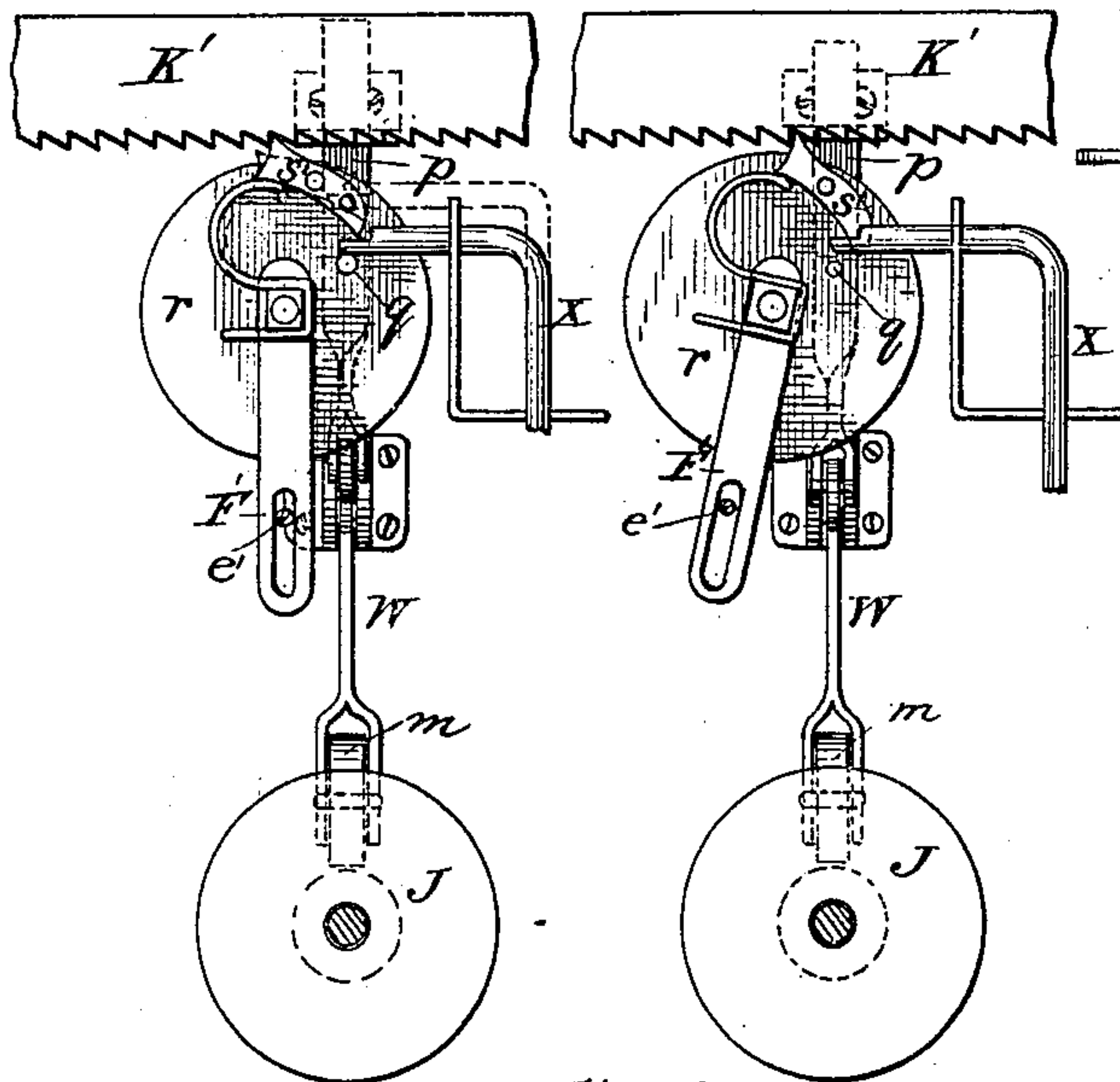


Fig. 4.

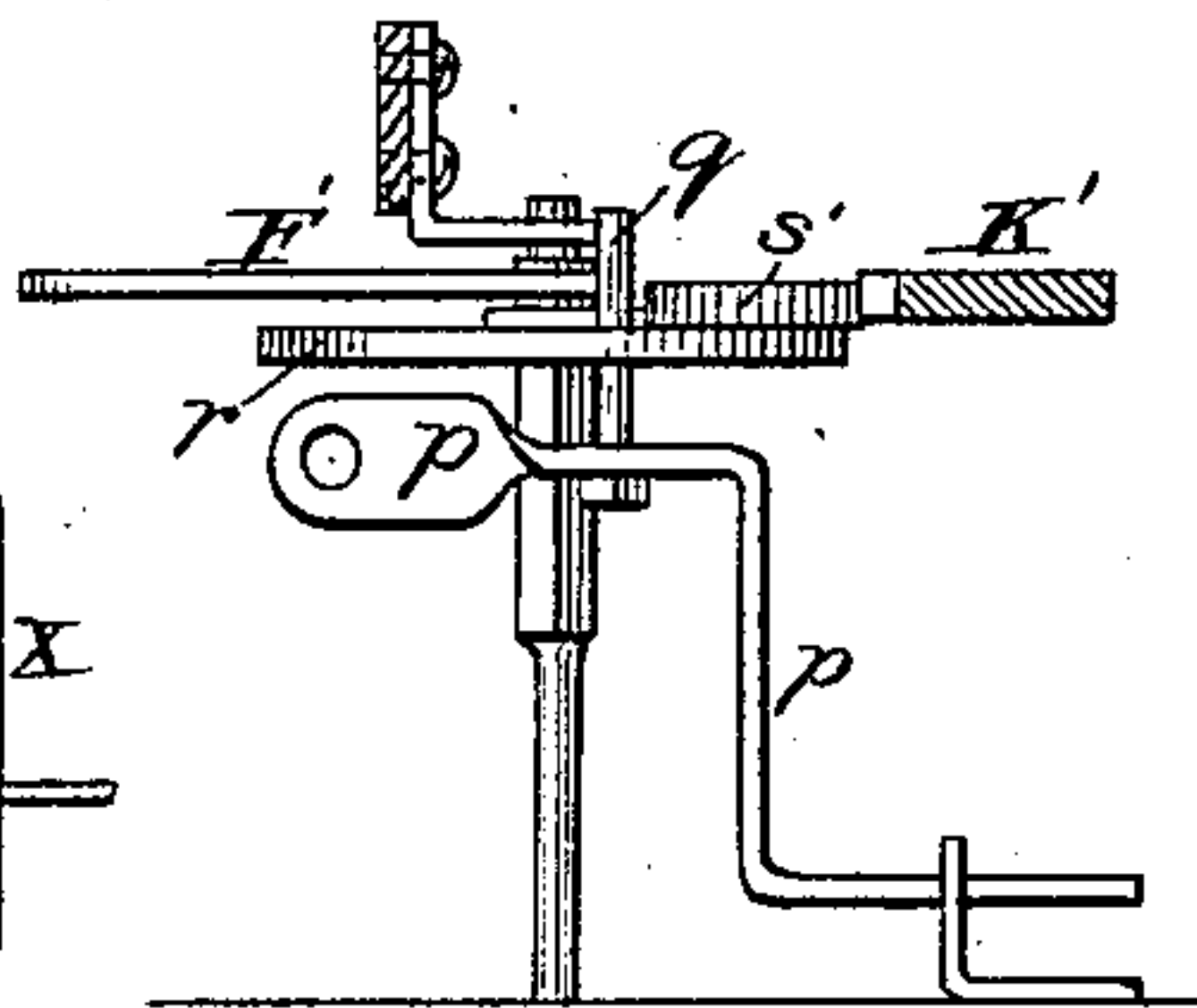


Fig. 5.

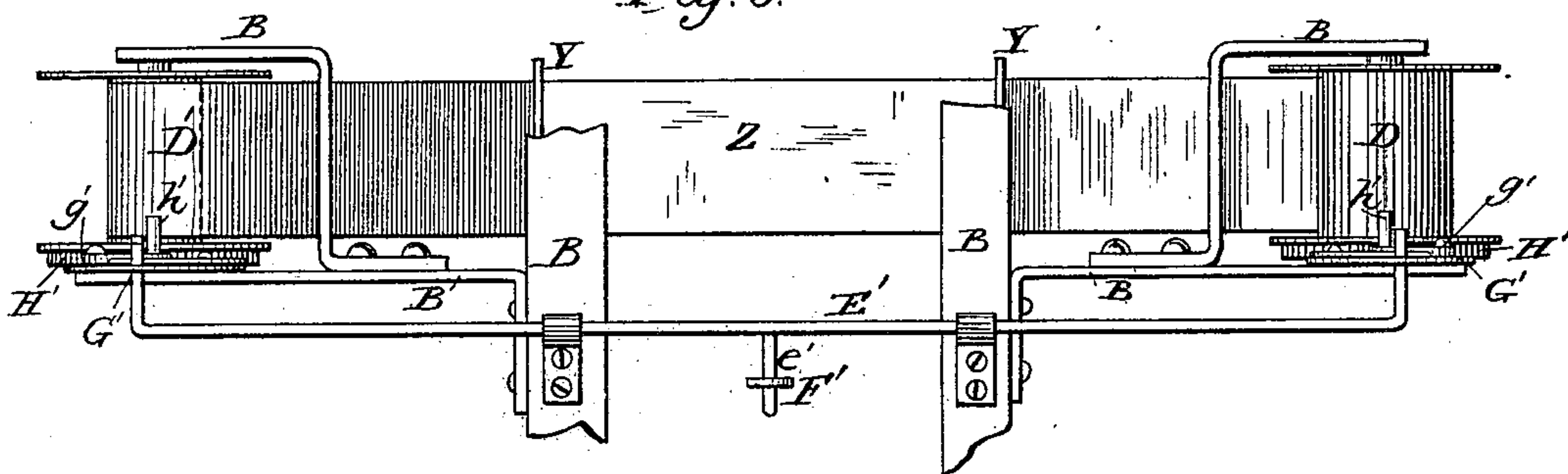
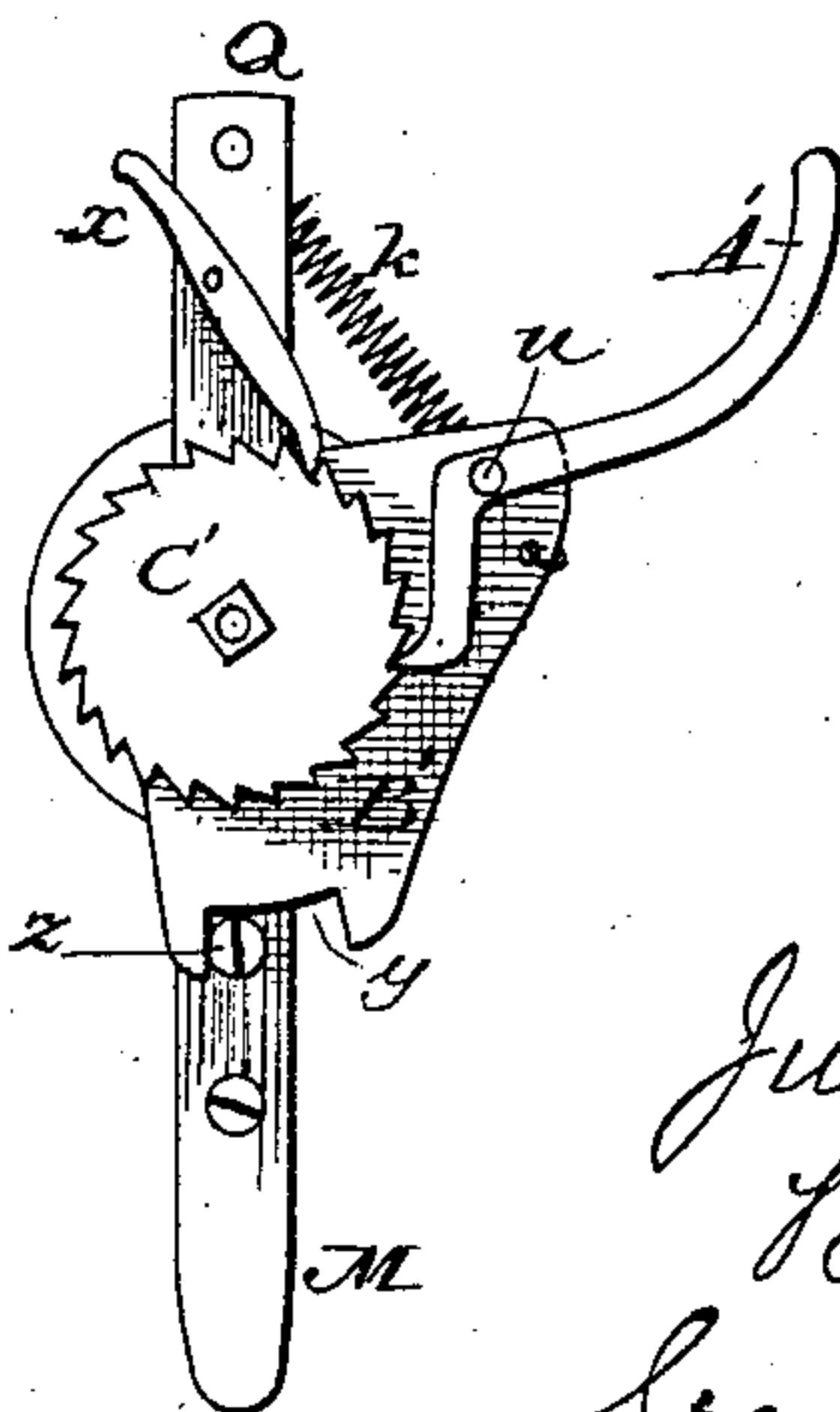


Fig. 6.



Witnesses.

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UNITED STATES PATENT OFFICE.

JUSTUS F. LINDGREN, OF PEORIA, ILLINOIS.

TYPE-WRITER.

SPECIFICATION forming part of Letters Patent No. 246,960, dated September 13, 1881.

Application filed July 15, 1881. (Model.)

To all whom it may concern:

Be it known that I, JUSTUS F. LINDGREN, of Peoria, in the county of Peoria and State of Illinois, have invented certain new and useful Improvements in Type-Writers; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

Figure 1 is a plan or top view of the machine. Fig. 2 is a vertical longitudinal section on line *yy* of Fig. 1. Fig. 3 is a detail view of the mechanism for operating the carriage. Fig. 4 is a detail view of the mechanism for operating the wheel carrying the pawl which works the ratchet of the carriage. Fig. 5 is a front elevation of the ribbon-carrying mechanism. Fig. 6 is a detail view of the pawl-and-ratchet mechanism which works the paper-carrying roller.

The same part is indicated by the same letter of reference wherever it occurs in the drawings.

The object of my invention is to produce a cheap and simple type-writing machine.

The nature of my invention consists in the details of improvement in the construction and combination of the mechanisms for producing the movements of the inking-ribbon, of the type-wheel, the roller-carriage, and the paper-carrying roller, and in the arrangement of the type-wheel in such a position relatively to the paper-carrying roller that the impression of each letter can be seen as soon as it is made and every line read as soon as it is printed, thus insuring accuracy of work by facilitating the immediate detection and correction of errors.

The machine consists, mainly, of a paper-carrying roller and carriage, an inking-ribbon pressed against the paper by each type as it is used, a horizontal type-wheel with type projecting radially from its periphery, an alphabet-circle, on which the letters to be printed are arranged in any convenient order, and a handle, by which the printing is effected. As each line is printed the paper-carrying roller is rotated a space equal to that between two lines by a ratchet mechanism worked by hand, and the carriage is run back to its initial position by hand.

In the drawings, A marks the base-board of the machine, on which the frame is supported, and B the frame in which the working parts are supported and move.

Upon the upright posts of the frame is supported and fixed the hub B' of the type-wheel T. The type-wheel is an annular disk turning on the hub B' in a horizontal plane and provided on its periphery with all the type required to be used in the machine, said type projecting radially from the perimeter of the wheel.

Above the type-wheel is the alphabet-circle E, immovably fixed by screws *ss* to the hub B', and carrying on its upper side the circular notched guide D. On the horizontal edge of alphabet-circle E are marked the letters intended to be printed by the machine.

Near the edge of the type-wheel is fixed a standard, G, held by a nut, *d*, and to this standard is pivoted at *c* a lever, F, provided with a rotating-handle, H. This lever is pivoted at *b* to the upper end of the upright shaft C, passing through the hub B' and capable of being forced down by lever F until its lower end reaches the level of the bottom of the base-board. A collar, *a*, is attached to this shaft by a screw, and a spring, S, resting on top of gallows I tends by its reaction to force the shaft C upward till arrested by the contact of collar *a* with the lower surface of hub B'. The notches in the notched guide D are so arranged relatively to the letters on the alphabet-circle that when the lever F enters one of the notches it is directly over the corresponding letter of the alphabet on circle E, but when lever F rests on one of the teeth between the notches it will not be over any letter.

In front of the type-wheel, between it and the paper-carrying roller P, is arranged an inking-ribbon, Z, prepared in the usual way to leave an impression of any type which presses it against the surface of a sheet of paper. This ribbon is wound upon the spools D', and is drawn along a distance equal to the width of one type at each impression.

Guides Y Y direct the ribbon in its course, and ratchet mechanism attached to each spool winds it onto one spool off the other as the work progresses. This spool mechanism is clearly shown in Figs. 1 and 5. The spools are hung in the frame B. Attached to the bottom of each is a ratchet-wheel, H', oper-

ated by a dog, g' , pivoted to the upper side of a vibrating ratchet-plate, G' , operated by the ratchet-bar E' , which receives a horizontal reciprocating motion by means of a pin, e' , connected with a vibrating bar, F' , attached to the shaft v of plate r , and operated as herein-after described. A cam, h' , attached to plate G' serves to throw the dog g' out of or into gear with ratchet-wheel H' , the dog being held in engagement by a light spring. The spool ratchet mechanism is the same at each end, the one spool winding as the other unwinds, and the pawls can be so disposed as to work the ribbon alternately in both directions, if so desired.

Attached to shaft C is a fixed spool, J , (see Fig. 2,) which is raised and lowered with the shaft. Between its disks it receives a small wheel, g , attached to the end of crank-lever K , which is operated by the rise and fall of shaft C . Lever K is pivoted at f to the frame, and has pivoted to it at h the long bent rod L , which extends back under the carriage N . By means of pin i , projecting up from this rod, the carriage-arm M is caused to vibrate on its fulcrum at j and carry the paper-roller P toward and away from the type-wheel, as required.

N marks the carriage-frame, to which the up-rights Q , connected by rod M , are pivoted at j . In these arms are hung the paper-carrying roller P and the roller O , which runs in contact with it to hold the paper in place. To the upper rod, V , of the roller-frame are attached paper-fenders L' and a spring, J' , to assist in holding the paper properly in place.

On the end of the paper-cylinder P , outside the arms Q , is a ratchet mechanism for turning the cylinder P a distance proper to separate the lines of printing after each line has been completed. This mechanism is clearly shown in Fig. 6, in which A' marks the handle of a dog, pivoted at u to plate B' , which turns loosely on the axle of the ratchet-wheel C' . The motion of plate B' is limited by the recess y and pin z , which permit it to turn the wheel only the distance between two teeth at each throw of the dog. A pawl, x , prevents the return of the wheel while dog A' is withdrawn for a new hold. A spring, k , retracts the plate after each throw. This ratchet mechanism is operated by hand to turn the paper at the end of each line, as before explained.

After a line has been printed the carriage has to be returned to its initial position longitudinally to begin a new line. This is done by hand.

The longitudinal movement of the carriage as each type is printed is automatically effected by mechanism operated by the lever F , as follows: Between the disks of spool J , attached to shaft C , is received a small wheel, m on the end of a crank-lever, W , pivoted to the frame at l . To this lever is pivoted at n a piece, p , which receives and operates a pin,

q , which passes loosely through a circular plate, r , turning on shaft p , and provided with a dog, s , eccentrically attached to the plate, and engaging with the long ratchet-toothed bar K' on the front of the carriage. As the lever F is depressed the pawl moves the carriage longitudinally a distance equal to one tooth to present paper for the next type. The carriage slides on guide-rods $R R$, supported by brackets $U U$, resting on the base-board.

X marks the end of a rod which operates to disengage the pawl s from the toothed bar of the carriage to allow it to be run back longitudinally to its initial position at the completion of a line of type-writing. Springs serve to hold the roller P back out of contact with the type until it is brought forward by the operation of lever F to receive an impression.

The operation has for the most part been explained in the description of the construction of the machine.

The parts being in place and the paper in readiness upon the cylinder P , the lever F is turned by handle H until the letter it is desired to print is under the handle end of that lever, when the lever is depressed till it touches the bottom of the notch below it in the guide D . That operation brings forward the cylinder P into contact with the ribbon Z and presses it against the type behind it to receive an impression in the well-known way. After each letter is printed the carriage moves one space to the left to place the paper in position to receive the next impression. At the end of a line the carriage is moved to the right, and the roller P is turned up a line-space to be in readiness for the following line. A bell is rung by a tappet to indicate the approach of the end of each line.

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

1. The combination of the lever F , shaft C , spool J , crank-lever K , rod L , pin i , rod M , and vibrating roller-carrier arms Q , in manner and for the purpose described.

2. The combination of the lever F , shaft C , spool J , crank-lever W , link p , pin q , plate r , dog s , and ratchet-bar K' , all in the manner and for the purpose specified.

3. The combination of the frame B , spools $D' D'$, ratchet-rod E' , plates G' , spring-pawls g' , cams h' , and mechanism for operating the ratchet-rod, all in the manner and for the purpose stated.

In testimony that I claim the foregoing as my own invention I affix my signature in presence of two witnesses.

JUSTUS F. LINDGREN.

Witnesses:

GEO. F. GRAHAM,
CHAS. F. STANSBURY.