

(No Model.)

2 Sheets—Sheet 1.

G. W. N. YOST.

TYPE WRITER.

No. 295,469.

Patented Mar. 18, 1884.

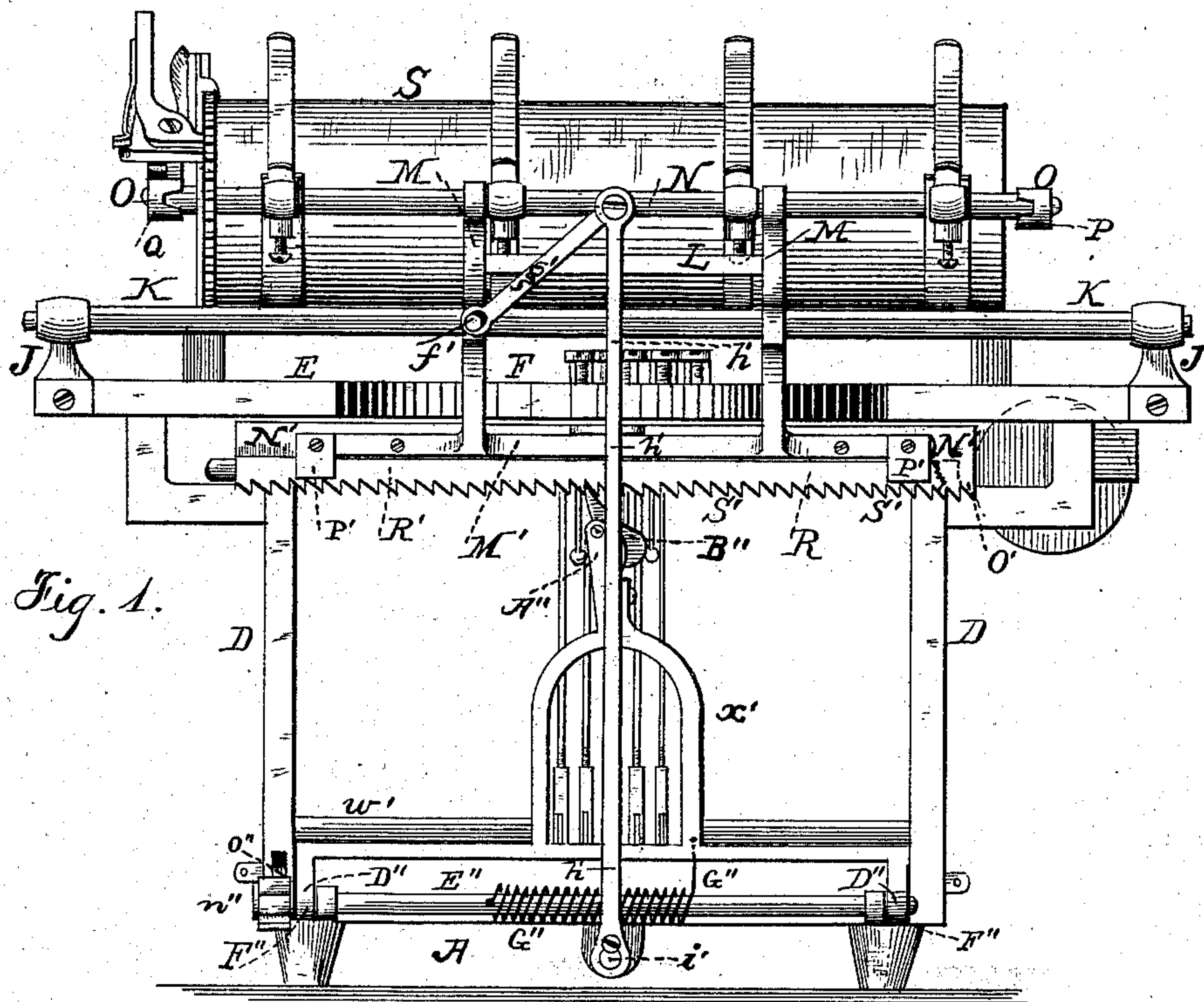


Fig. 1.

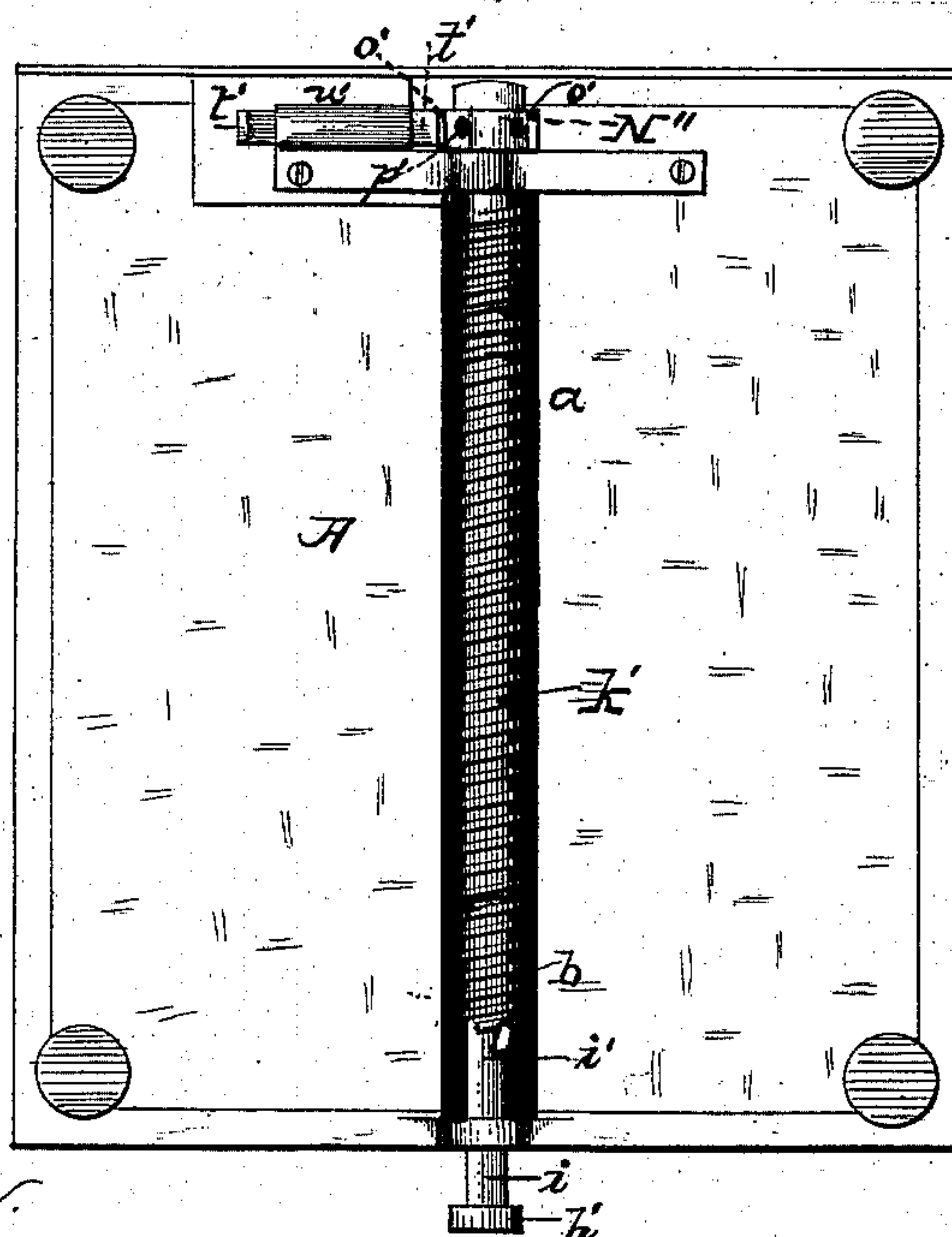


Fig. 2.

*Witnesses:*

Walter Fowler.

Chas. C. Gill

Inventor:

Geo. W. May post.

By his atty

Powland Cox

(No Model.)

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2 Sheets—Sheet 2.

TYPE WRITER.

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Fig. 3.

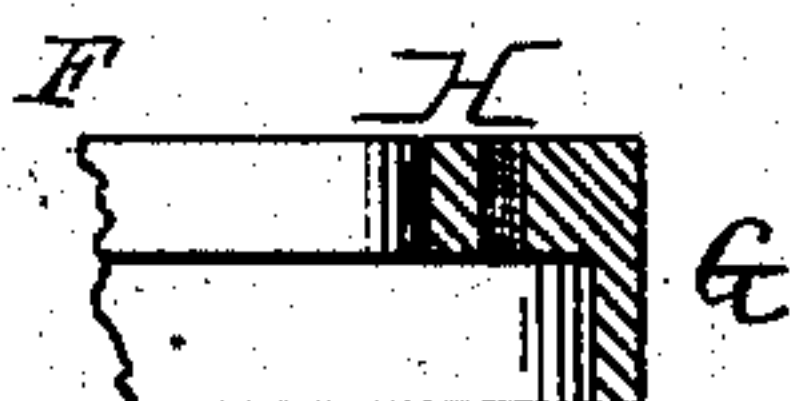


Fig. 4.

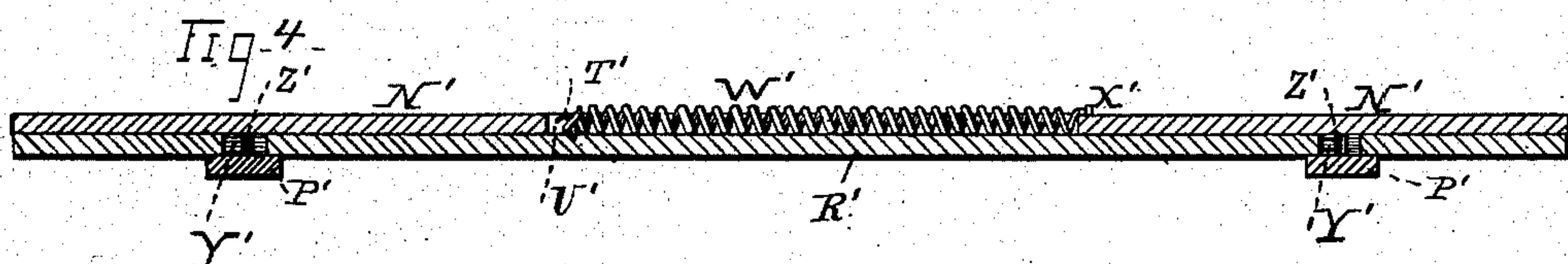


Fig. 5.

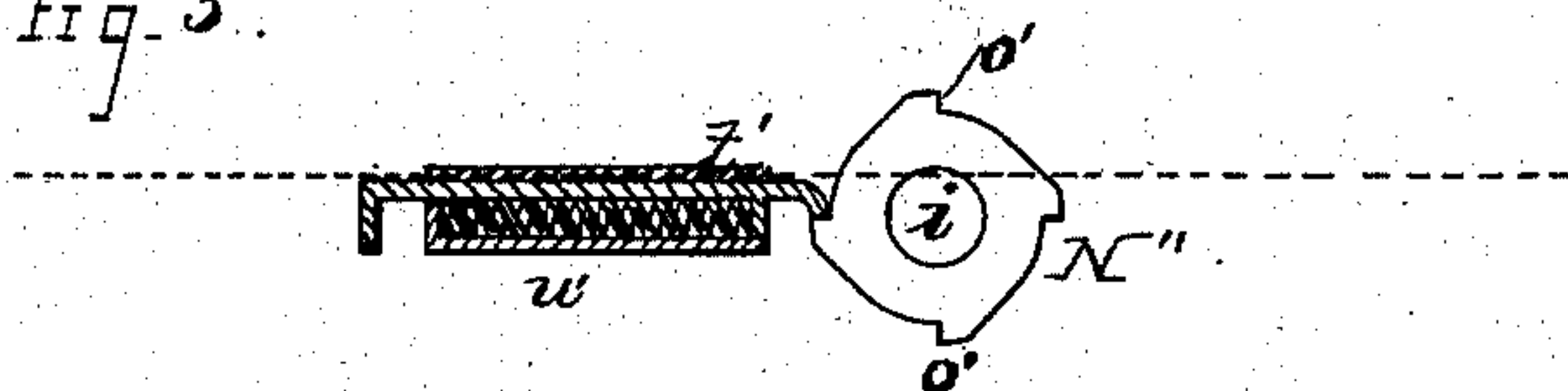
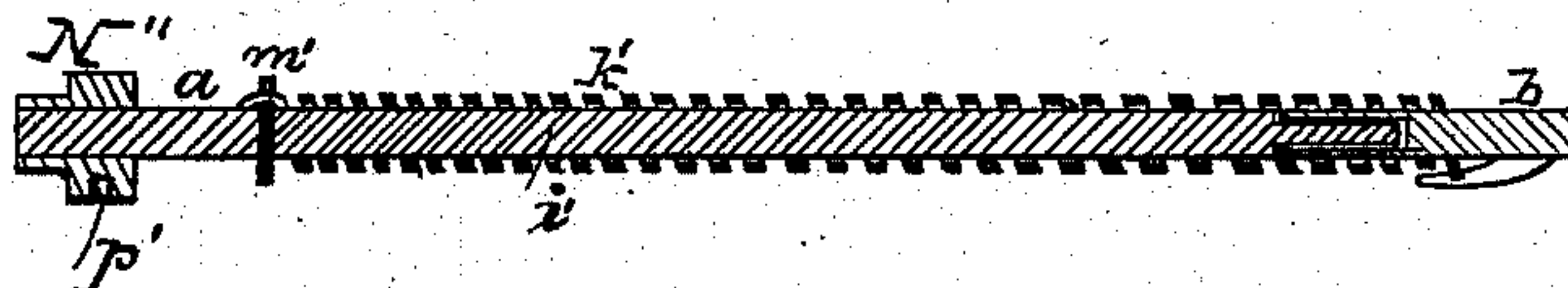


Fig. 6.



WITNESSES=

*Chas. C. Gill*  
*J. Sandford*

INVENTOR=

*Geo. W. N. Yost,*  
*By his atty,*  
*Howland Cox*



# UNITED STATES PATENT OFFICE.

GEORGE W. N. YOST, OF NEW YORK, N. Y., ASSIGNOR TO THE AMERICAN  
WRITING MACHINE COMPANY, OF NEW YORK.

## TYPE-WRITER.

SPECIFICATION forming part of Letters Patent No. 295,469, dated March 18, 1884.

Application filed June 23, 1880. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE W. N. YOST, of New York, in the county and State of New York, have invented a new and useful Improvement in Type-Writers, of which the following is a specification, reference being had to accompanying drawings.

The invention relates to an improvement in type-writers; and it consists in a novel motive power for effecting and controlling the lateral movement of the paper-carriage, as hereinafter fully set forth and claimed.

Referring to the accompanying drawings, Figure 1 is a rear elevation of a type-writer embodying the elements of my invention. Fig. 2 is a bottom view of same. Fig. 3 is a detached sectional view of the ring F. Fig. 4 is a central longitudinal transverse section of the bars N' R'. Fig. 5 is a plan view, partly in section, of the nut and spring-bar for regulating the tension of the spring k'. Fig. 6 is a central vertical longitudinal section of the shaft i'.

A indicates the bed of the machine, which is rectangular in form, set preferably upon four knobs, and provided upon its front edge and sides, adjacent to the front edge, with suitable flanges to form a box-like receptacle for holding the keys. The side flanges extend toward the rear about one-half the depth of the bed A, where they meet and connect with the vertical parts D. The parts D extend upward and support upon their upper ends the horizontal bed-plate or top plate, E, which is secured upon the frames D by screws, horizontally over the rear portion of the bed.

E is an open frame, and has at its central portions the ring F, which preferably will be large enough to reach nearly across the machine. The ring F is composed of a vertical flange, G, and a horizontal flange, H, so that in cross-section it represents an angle-bar. To the ring F is secured in any suitable manner the usual series of key-bars, which may be actuated by the usual series of levers and finger-pieces. (Not shown.)

Upon the rear corners of the top plate, E, are secured the standards J, in the upper ends of which are mounted the journals of the guide-rail K, which is a plain rod extending horizontally across the machine.

Upon the guide-rail K is mounted the frame L, consisting of two arms, M, suitably connected, and having central apertures, through which the guide-rod K passes, and which permit the lateral movement of the frame upon the rod. The upper ends of the arms M extend forward of the guide-rail K a proper distance, and have mounted in apertures in their extremities the rod N, which forms one side of the paper-carriage O. The paper-carriage O is a rectangular-shaped frame consisting of the two end pieces, P Q, connected at their extremities by two side rods.

Between the side rods of the frame O, and running parallel therewith, is secured the platen S, mounted upon an axle, and consisting of a cylindrical case having an exterior surface of hard rubber or other suitable material. The platen S will be supplied with suitable devices for rotating it when in use, to form spaces between the lines printed, and will preferably be provided with a frame for supporting the paper to be printed upon.

Upon the lower ends of the arms M, before mentioned, which extend downward in rear of the machine, is rigidly formed or secured the bar M', having affixed upon its front face, by pivots or otherwise, the rack N', which is about the same length as and arranged on a parallel plane with the platen S. The lower edge of the rack N' is furnished with a series of teeth, O', all being of equal dimensions.

Upon the rear of the bar M', preferably at its ends, are secured the arms P', which extend downward to a point immediately above the plane of the teeth O'. Between the arms P' and the rack N' is placed the bar R', having upon its lower edge the teeth S', of the same dimensions and arranged on the same horizontal plane as the teeth O'. The bar R' is almost the same length as the rack N', lacking simply a distance equal to the width of one of the teeth S' or O'.

Upon the inner face of the bar R' is provided a stud, T', which projects through the left-hand end of the slot U', formed in the central portions of the rack N'. Within the slot U' is placed a spiral spring, W', one end of which is attached to the stud T', secured on the bar R', while the other end is connected with the stud X' on the rack N'. The effect of the



spring W' is to draw the bar R' toward the left of the machine, the said bar being arranged so as to have a lateral movement, while the rack N' is rigidly secured, and can only  
 5 move as the paper-carriage frame is moved. The length of each movement of the bar R' (hereinafter explained) is controlled by the length of the elongated apertures Y', formed in the said bar, and arranged so that they will  
 10 come behind the arms P', which are supplied with studs Z', which enter the said apertures and support the bar R' in place.

Upon the rear of one of the bars M is secured a screw or stud, f', upon which is placed  
 15 one end of the connecting-arm g', the other end being pivoted, so as to oscillate freely, to the end of the rod or lever h', which passes downward and is rigidly affixed to the end of the horizontal shaft i'. This shaft consists of two parts, a b, one end of the latter  
 20 fitting over the end of the former, as shown in Fig. 6. The shaft i' extends to the front end of the machine, along the transverse center of and in a groove cut in the under side  
 25 of the bed A, and has coiled about it, nearly from end to end, the spring k', which will be of appropriate strength to operate the paper-carriage and platen S, as hereinafter set forth. The rear end of the spring k' is secured under  
 30 a projection formed on the part b, and its front end upon a pin, m', which passes through the part a. Thus when the part b is revolved either to the right or left the spring will be  
 35 coiled tighter or made more loose, and the force of its tension, which is exerted to revolve the shaft toward the left, correspondingly increased or diminished. Upon the forward  
 40 end of the shaft i' is secured a nut, N'', having the shoulders or teeth o' and sockets p', the purpose of which is to facilitate the turning of the shaft as desired, and the consequent regulation of the tension of the spring k'. For the purpose of preventing the force of the  
 45 spring k' from revolving the shaft i' in the reverse direction, I have provided a spring-bar, t', the point of which catches upon the shoulders o', and thereby effects the object for which it is intended. The spring-bar t' may  
 50 be of any appropriate construction, and will preferably be inclosed in a casing, u'.

Above the bed A is arranged the rectangular frame w', the edges of which extend around the bed in close proximity to its sides and ends. Upon the rear edge of the frame w' is formed  
 55 or attached the stand x', which extends upward a suitable distance, and has suitably secured upon its upper portion the bar A'', the upper end of which is bifurcated, and has the pawl B'' loosely pivoted between its arms. The lower  
 60 end of the pawl B'' is weighted or enlarged, so that its tendency will be to turn downward, and thus keep the point or biting-edge of the pawl up. The bar A'' and pawl B'' will be of such length that the point of the pawl, when  
 65 in an upright position, will engage the teeth S', as hereinafter described.

The rear end of the frame w' is furnished with the sleeves D'', by which it is mounted upon the shaft E'', which extends along the rear of the machine, being journaled in the  
 70 boxes F''.

Upon the shaft E'' is coiled the spring G'', one end of which bears against a pin rigidly attached to the shaft, while the other end extends upward and exerts a pressure against  
 75 the inner side of the rear portion of the rectangular frame w', thereby tilting the front portion of the same upward and the stand x' slightly outward, and causing the pawl B'' to slide from the teeth o' to the teeth S'. It is  
 80 obvious that when the tension of the spring G'' is overcome by pressing downward upon the front portion of the frame w' the stand x' will assume its former position, and the pawl B'' will lose its engagement with the teeth S'  
 85 and return to the teeth o'. This oscillating movement of the pawl B'' may be kept up by alternately pressing upon the front portion of the frame w', and then relieving the pressure. The end of the shaft E'' is supplied with a ser-  
 90 rated nut, n'', and spring-pawl o'', for the purpose of regulating the tension of the spring G'', similar to the nut and spring-pawl provided for the shaft i'.

Operation: The paper to be printed upon is  
 95 passed round the platen S, and the paper-carriage frame carrying the platen drawn to the right-hand end of the top plate, E. When the paper-carriage is thus moved to the right, the  
 100 pawl B'' will permit the teeth S', with which it is in contact, to slide over it, but not when the movement of the said frame is reversed. When the paper-carriage frame has been  
 105 moved to the right of the plate E, the bar R', actuated by the spring W', will exert a constant tension to return to the left of the machine. The paper being in proper position, as  
 110 aforesaid, the printing may be proceeded with by operating the type-keys in the customary manner, one key only being actuated at a time, and the one bearing the character desired to  
 115 be produced upon the paper. As each key is struck, it presses the front portion of the frame w' downward, which has the effect of tilting its rear portion and throwing the stand x' and  
 120 pawl B'' forward. By this movement the pawl B'' is removed from its engagement with the teeth S', as aforesaid. When the pawl B'' leaves the teeth S', the tension of the spring W' draws the bar R' toward the left a distance equal  
 125 to the width of one of the teeth S', the bar R' being prevented from moving farther by the ends of the elongated apertures Y' coming in contact with the studs Z'. After the pressure on the front end of the frame w' has been re-  
 130 lieved by lifting the finger from the type-key, the key and frame assume their former positions, and the pawl B'' re-enters the teeth S' one tooth ahead of where it was before, the bar R' moving to the left when the pawl was  
 first removed, as aforesaid. When the pawl B'' passes from the teeth S', the lever h' draws



the paper-carriage frame toward the left a distance equal to the length of the elongated apertures Y', or the width of one of the teeth S' S', by overcoming the tension of the spring W'. The movement of the carriage-frame to the left carries the paper and presents a clear space to be printed on by the type next operated. Every time a key is struck, the foregoing operation occurs, and at each stroke the paper, with the platen and paper-carriage frame, is carried one space to the left, each space representing a distance equal to the width of one of the teeth S' S', and governing the space between the letters of the word printed. What are known as "space-keys," the nature of which need not be explained, will be provided to form spaces between the words. After the paper-carriage frame has traveled to the left a sufficient distance to permit the line to be completed, the platen is rotated, so as to present a clean surface to the type, and then drawn to the right and the printing continued as before.

The racks carrying the teeth S' S', with their connections, the top plate, E, the paper-carriage frame, with its connections, and the other constructions herein described and shown, are my invention, and I hereby reserve the right to embrace them in separate applications for Letters Patent filed about the same date with this application; but I do not claim them herein.

What I do claim herein, and desire to secure by Letters Patent, is—

1. In a type-writer, a lever connected at its upper end with the paper-carriage, and hinged or pivoted at its lower end upon a shaft having a spring-tension toward the left, and a means for regulating the tension.

2. A driving-power for the paper-carriage of a type-writer, consisting of an arm or lever hinged or pivoted at its lower end and having a tension toward the left, the upper end being connected with the paper-carriage and adapted to vibrate with it, substantially as shown and set forth.

3. In a type-writing machine, the lever h', having at its upper end the link or rod g', connecting it with the paper-carriage frame, while its lower end is pivoted on the end of the shaft i', provided with the spring k', substantially as set forth.

4. In a type-writer, a paper-carriage capable of lateral movement, in combination with the rod h', connected with the carriage at its upper end, and mounted at its lower end upon the shaft i', supplied with the spiral spring k' and toothed nut N'', whereby the tension of the spring may be regulated, substantially as set forth.

GEORGE W. N. YOST.

Witnesses:

R. W. JOHNSON,  
CHAS. C. GILL.