

(Model.)

2 Sheets—Sheet 1.

G. W. N. YOST.  
TYPE WRITING MACHINE.

No. 401,990.

Patented Apr. 23, 1889.

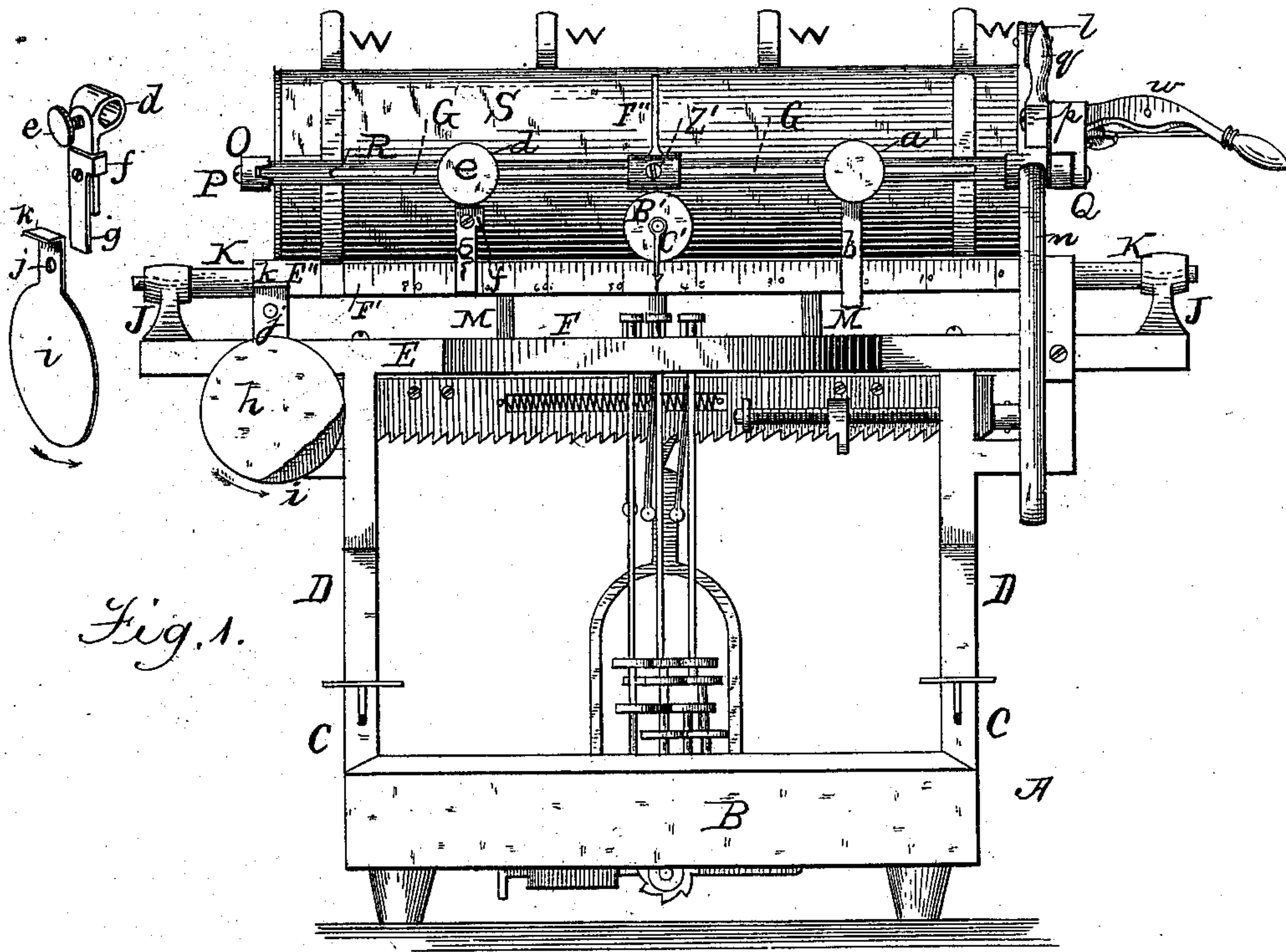


Fig. 1.

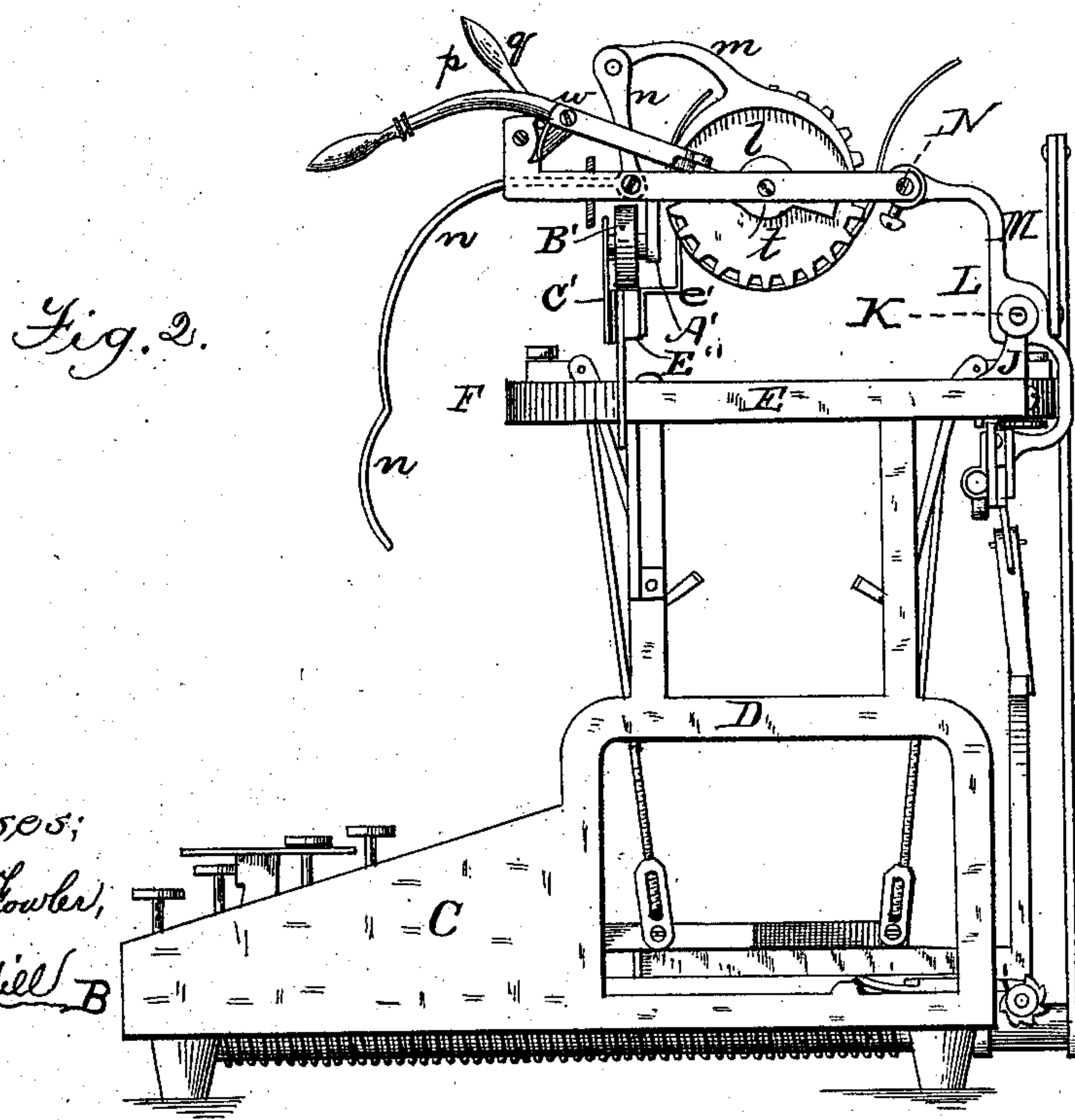


Fig. 2.

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George H. W. Vost,  
By his atty  
Rowland Fox



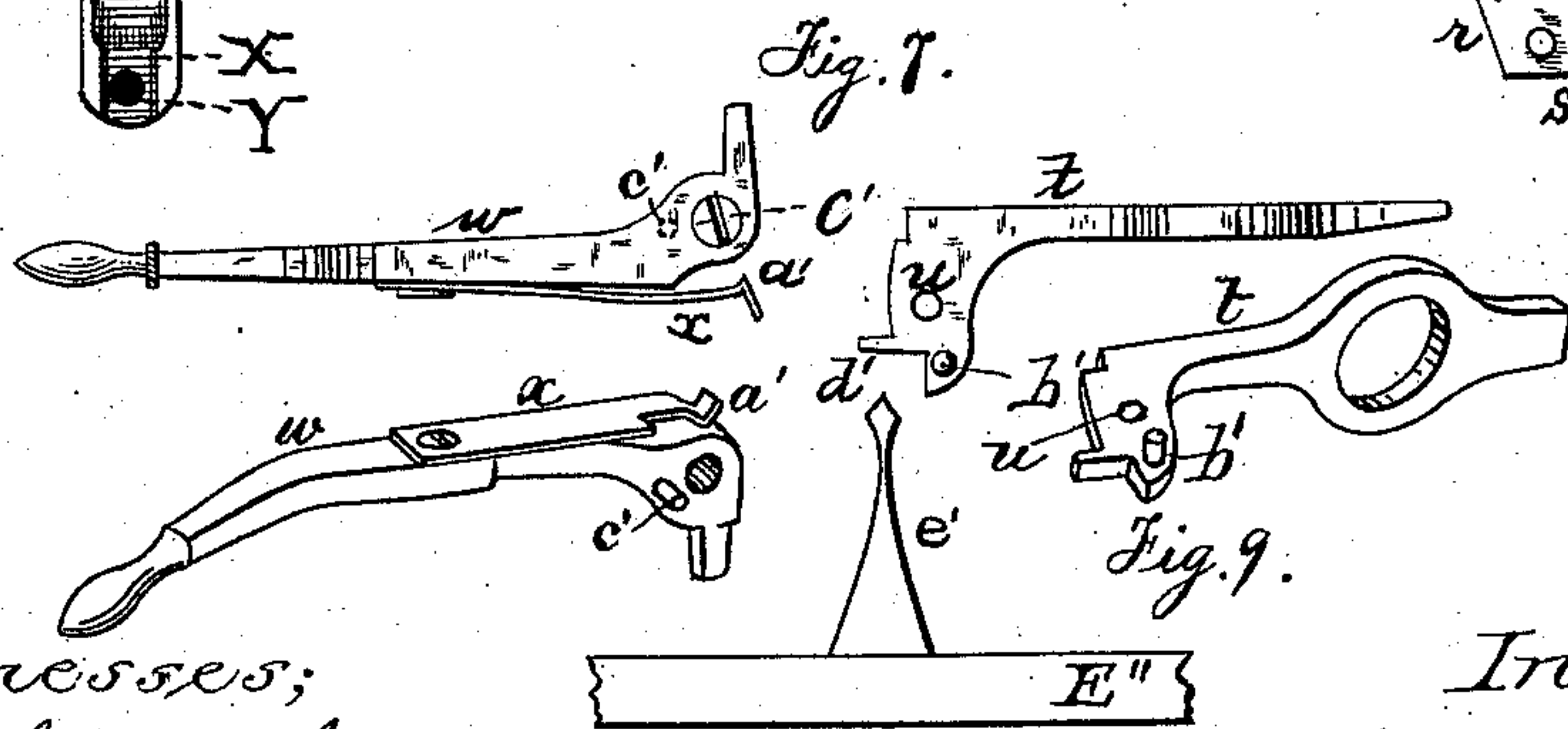
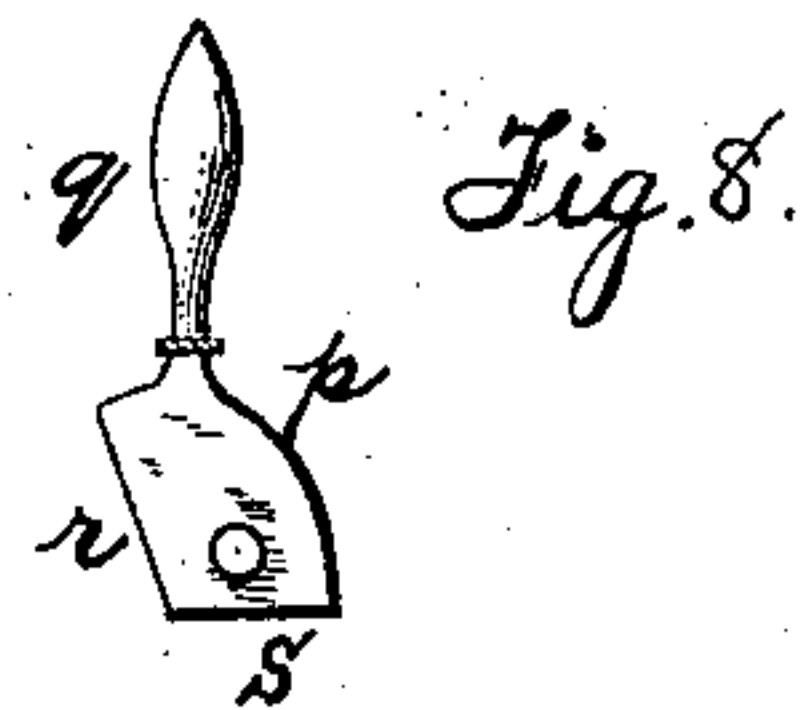
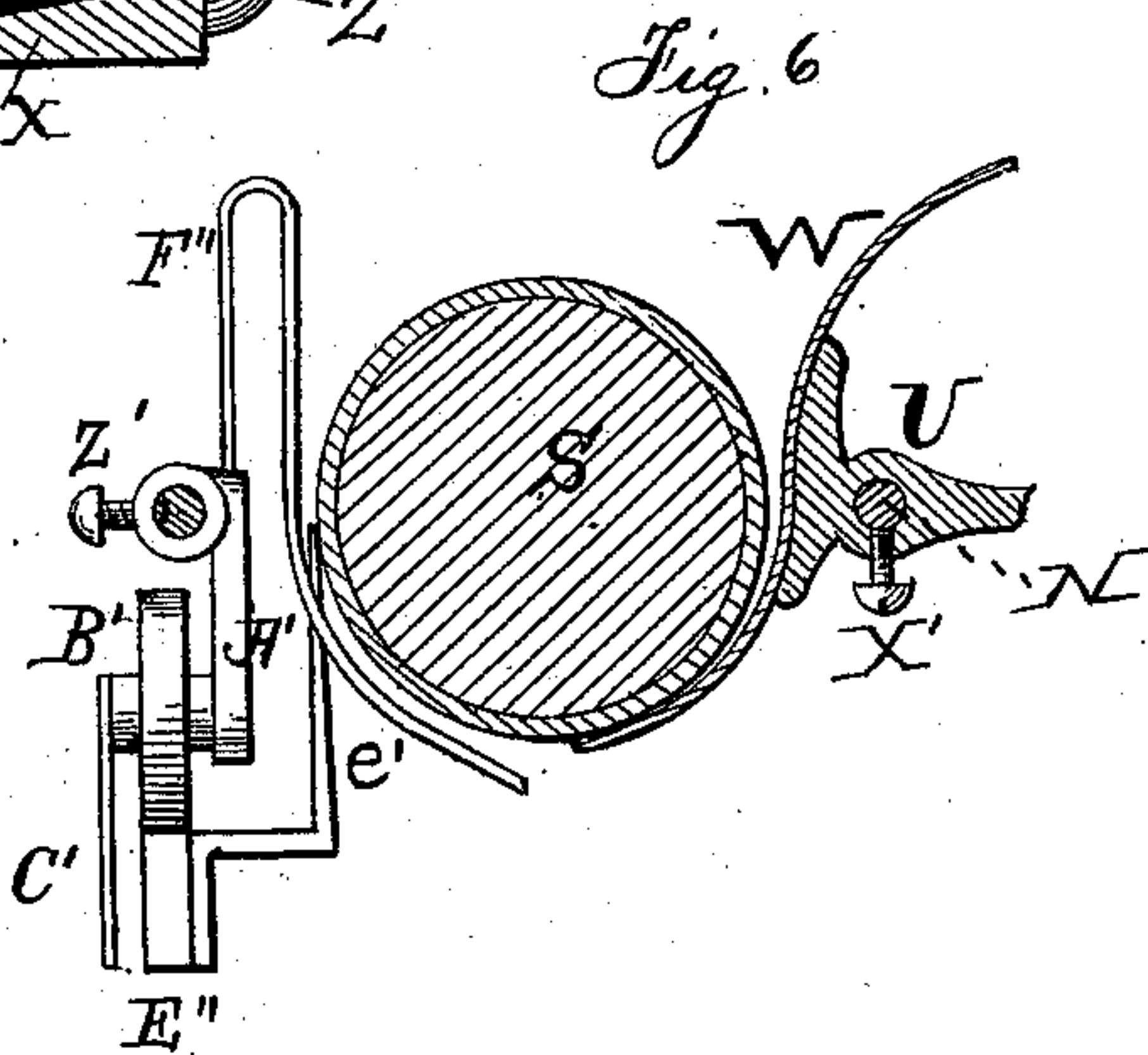
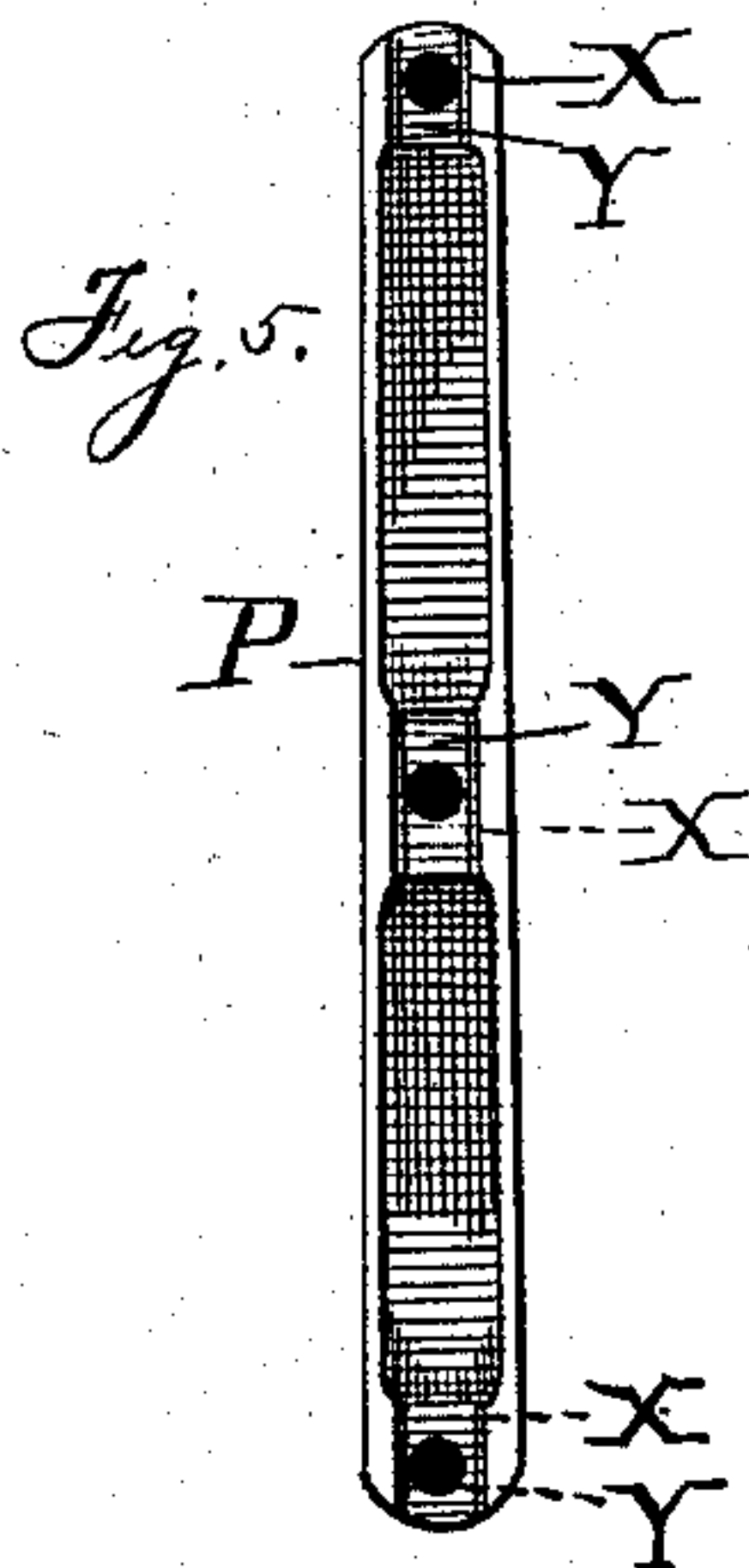
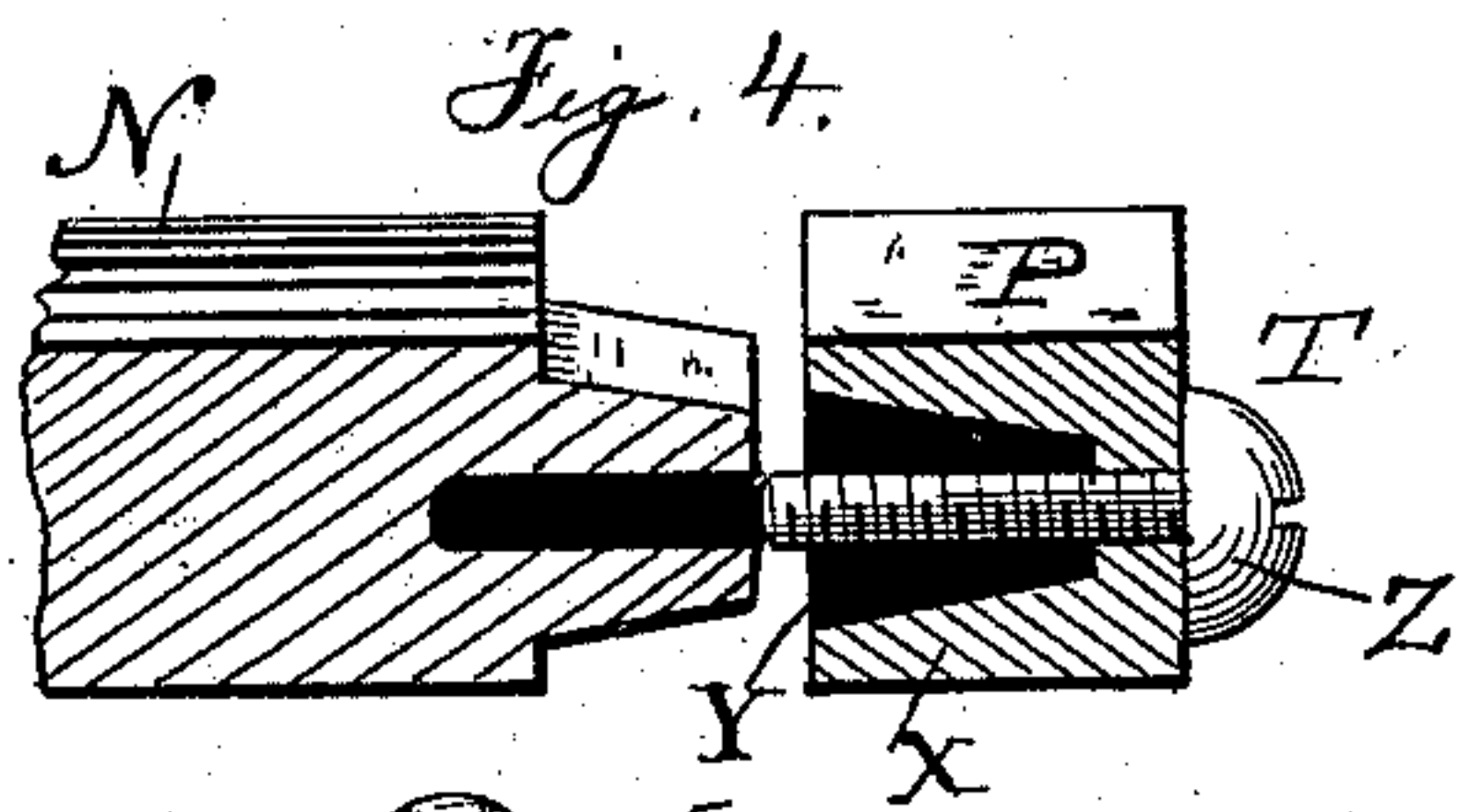
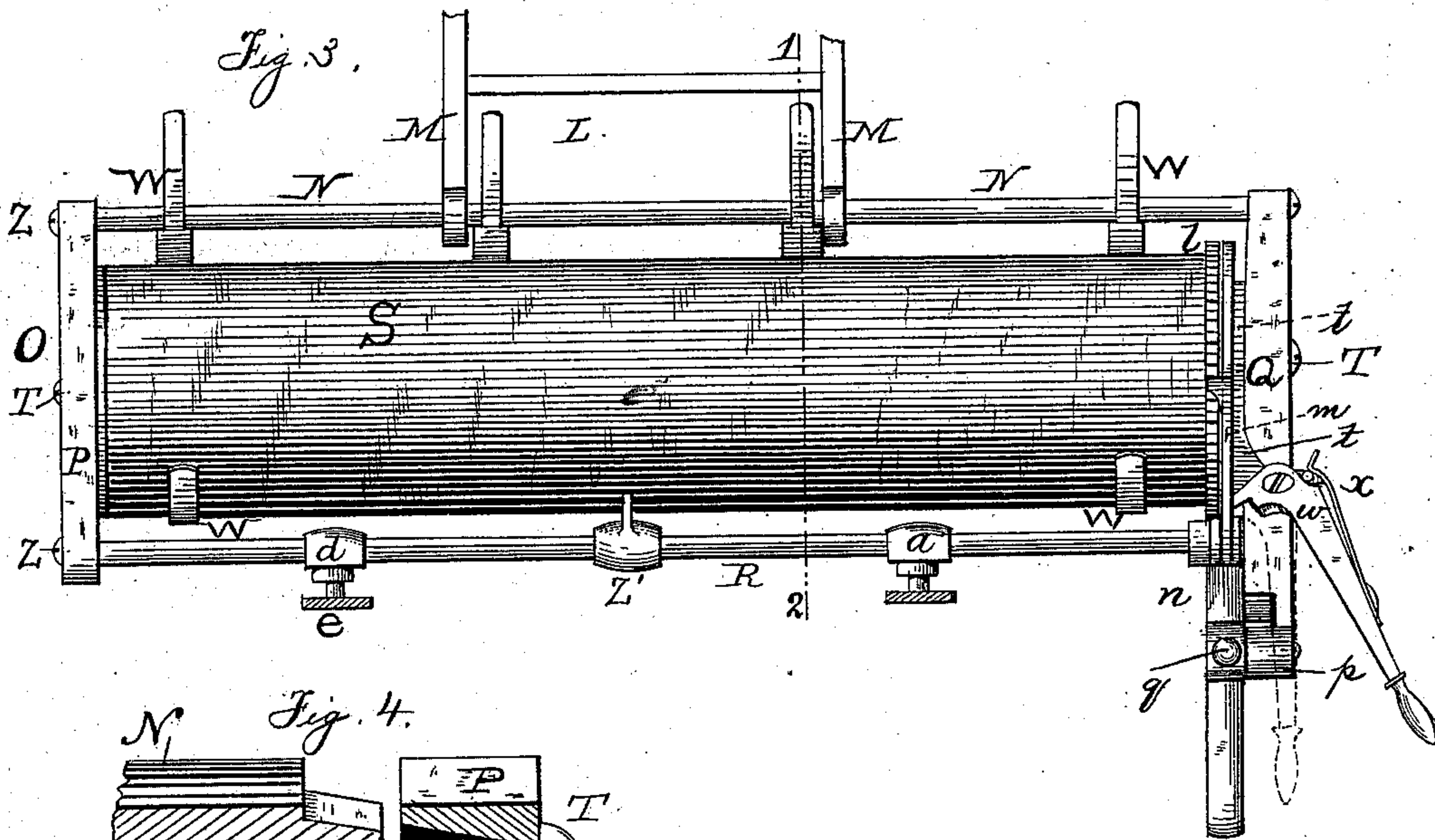
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J. Walter Fowler,  
Chas. A. Hill

Inventor;  
George W. N. Yost,  
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# UNITED STATES PATENT OFFICE.

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

## TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 401,990, dated April 23, 1889.

Application filed June 28, 1880. Serial No. 12,604. (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 - Writing Machines, of which the following is a specification, reference being had to the accompanying drawings.

The invention relates to an improvement in type-writers; and it consists in the elements presented in the following description and claims, from which their nature and construction will fully appear.

Referring to the accompanying drawings, Figure 1 is a front elevation of a type-writer incorporating the elements of the invention. Fig. 2 is a side view of same. Fig. 3 is a top view of the paper-carriage frame and its connections. Fig. 4 is a detached sectional view, partly in perspective, of the end and one side of the paper-carriage frame, showing the manner of their connection. Fig. 5 is a view of the interior of the end of the paper-carriage frame. Fig. 6 is a vertical section through the line 1 2 of Fig. 3. Fig. 7 is a plan view of the lever *w* and bar *t*. Fig. 8 is a similar view of the space-regulator *p*. Fig. 9 is a detached view of the indicator *e'*.

A indicates the bed of the machine, which is rectangular in form, set, preferably, upon four knobs, and provided upon its front edge with the vertical flange B, and upon its sides, adjacent to the front edge, with the inclined flanges C, which 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 pass upward a proper distance and support upon their upper ends the horizontal bed-plate or top plate, E, which is secured upon the frames D by screws or otherwise. The top plate, which extends horizontally over the rear portion of the bed A, is an open frame, and has at its central portion the ring F, which, preferably, should be large enough to pass nearly across the machine.

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, which consists of the two end pieces, P Q, and the side rods, N R, which connect the pieces and form a rectangular frame, as shown in Fig. 3.

Between the rods N R, and running parallel therewith, is secured the platen S, mounted upon the axle T and consisting of a cylindrical case having an exterior surface of hard rubber or any other suitable material. The ends of the platen S are preferably finished with metallic heads and supplied with bushings, through which the axle T is inserted. The axle T passes into the ends of the rectangular frames of the paper-carriage O, thus securing the platen S in place, and at the same time permitting it to be turned or revolved when desired.

The ends of the paper-carriage frame O are cast in the form of shells or hollow casings, their inner edges being open at the center, and at each end of the inner edges of the casings P Q are cast the shoulders X, in which are formed the grooves Y. The ends of the side bars, N R, and the axle T are tenoned, so as to be too large to fully enter, and so that the beveled sides only will snugly fit the grooves Y, where they are retained by the screws Z, which pass through the ends P Q and enter the extremities of the sides N R and axle T, as shown in Fig. 4.

At suitable points upon the rod N are secured, by set-screws or otherwise, the arms U, upon which are attached the spring-bars W, forming the support for the paper to be printed upon. The rear ends of the spring-bars W curve upward and away from the platen S, while the other ends thereof curve downward and under the platen, being in close relation thereto. The front ends of the two end bars, W, curve beneath and in front of and concentrically with the platen S, and terminate al-



most on a plane with its upper surface. The bars *W* may, of course, be adjusted at any inclination desired by means of the set-screws *X'*.

5 Upon the rod *R*, at about its center, is mounted the sleeve *Z'*, which is preferably retained in its place by a screw, and to which is secured the hanger *A'*, having at its lower end a small horizontal axle, upon which is  
10 mounted the traveler *B'* and the pointer *C'*. When the paper-carriage frame is in a horizontal position, the traveler *B'* rests upon the upper edge of the bar *E''*, which extends across the machine and has upon its front  
15 face the scale *F'*, graduated from right to left. The bar *E''* acts as a tramway upon which the traveler *B'* moves laterally, while the pointer *C'*, which it carries, extends downward in front of the scale *F'*. To the sleeve *Z'* is also  
20 secured a wire, *F''*, which passes vertically upward and then curves downward along the front of and under the platen *S*, the purpose of the wire being to support the central portion of the sheet of paper to be printed upon  
25 as it is passed forward from under the platen.

Upon either side of the sleeve *Z'* the rod *R* is supplied with the horizontal grooves *G*. Upon the rod *R*, at the right of the sleeve *Z'*, is mounted a sleeve, *a*, adjustable laterally by  
30 means of a set-screw, and carrying a pointer, *b*. Upon the rod *R*, at the left of the sleeve *Z'*, is mounted a sleeve, *d*, adjustable laterally by a set-screw, *e*, and having pivoted to it an arm, *g*, with a check, *f*, upon its upper right-hand  
35 edge. When the lower end of the arm *g* is pushed to the left, it will assume a nearly horizontal position before the check *f* strikes the side of the sleeve; but when the arm is pressed toward the right it is allowed a very slight  
40 lateral movement before the check comes in contact with the edge of the sleeve.

At the left of the machine, just below and in front of the top plate, *E*, is affixed a circular casing, *h*, which is closed at its left and  
45 open at its right hand edges by the arm securing it in place, and behind which is arranged the disk or indicator *i*, of a lighter or brighter color than its casing, having an arm, *j*, which extends upward and is pivoted on the verti-  
50 cal end of the bar *E''*, whereby the disk is suspended in place and is made capable of lateral movement from behind the casing *h*. The upper edge of the arm *j* is bent outward, forming a horizontal flange, *k*. While the  
55 paper carriage *O* is moving toward the left of the machine and has gone as far to the left as it should, the arm *g* strikes the flange *k* and throws the disk or indicator *i* out from behind the casing into a horizontal position.  
60 After the arm has passed the flange the disk will fall by its own weight into its former position. The point at which the disk shall be elevated, as described, will be governed by the adjustment of the arm and sleeve *d* on  
65 the rod *R*.

Upon the end of the platen *S*, at the right of the machine, is rigidly secured the ratchet-

wheel *l*, the teeth of which engage the point of the dog *m*, pivoted in the end of the lever  
70 *n* of the first class, which has its fulcrum upon the end of the rod *R* and its handle extending downward above the key-board of the machine, being suitably fashioned to be readily grasped by the hand of the operator. Upon the stand forming a part of the exten-  
75 sion of the end *Q* of the carriage-frame is pivoted the spring space-regulator *p*, having a handle, *q*, by which it may be operated, and having flat faces *r s* on its lower end, which is directly above the handle of the lever *n*,  
80 and controls its sweep. When the lower face, *s*, is turned down, the motion of the lever is restrained, and as the handle of the lever is raised its sweep is only sufficient to force the point of the dog *m* forward a space equal to  
85 the width of one tooth of the ratchet *l*. The dog *m*, being in contact with the ratchet-wheel *l*, and being forced forward, as described, causes the said wheel and the platen *S* to re-  
90 volve the distance specified at each operation of the lever *n*. When the face *r* of the space-regulator *p* is turned down, the lever has a larger sweep, and then forces the dog  
95 *m* forward, and thereby revolves the platen *S* a distance equal to the width of two teeth of the ratchet *l*.

The space-regulator *p* may be adjusted at will, according as it is desired to turn the platen *S* a greater or a less distance. The purpose  
100 of turning the platen *S*, as described, is to clear the paper from under the platen as each line is printed, and to form the spaces between the lines while they are being printed.

Upon the axle *T*, between the ratchet-wheel and the end *Q* of the frame *O*, is loosely  
105 mounted the bar *t*, one end of which extends outward about to the edge of the ratchet-wheel, where it is supplied with a stand or shoulder, *u*, to which is pivoted the fulcrum of the lever *w* of the first class. The lever *w*  
110 extends outward a proper distance on about the same plane with the bar *t*, its handle being suitably conformed to be grasped by the operator, and its point being at right angles to the handle and turned inward toward the  
115 platen *S*.

Upon the outer edge of the lever *w* is secured the spring *x*, the lower end of which is bent inward, forming a projection, *a'*, in juxtaposition to the stud *b'*, secured upon the  
120 stand *u*. When the handle of the lever *w* is pressed inward, its point will enter the ratchet-wheel *l* and the projection *a'* will assume a position in contact with the stud *b'*, whereby the lever is held in the position in which it  
125 has been pressed. When the lever *w* is forced outward again into its normal condition, its point will be moved away from the ratchet-wheel, the projection *a'* will be on the opposite side of the stud *b'*, as shown in full lines  
130 in Fig. 3, and the stud *c'*, secured to the lever, will strike the shoulder *d'* on the stand *u*, sustaining the lever in its outward position. The purpose of the lever *w* is to rotate the ratchet-



wheel *l* and platen *S*, so as to bring that portion of the paper being printed upon to the upper surface of the platen *S*, when it is desired to examine the same, and to return it to its former position, when the process of printing may be continued. The lever *w* at each end of its sweep comes in contact with the frame of the paper-carriage, and the length of its movement is determined thereby. The purpose of this is that when the platen *S* has been revolved toward the rear the distance of one sweep of the lever *w*, so as to expose the printed matter, the said platen may be revolved in the opposite direction a corresponding distance by the reverse movement of the lever, returning the line of printed matter to its former position.

At the center of the scale *F'* is secured, in any suitable manner, the indicator *e'*, the point of which extends upward in close relation to the front side of the platen *S* and indicates what is known as the "type center," or point beneath the platen where the type deliver their impressions.

The paper-carriage frame will be supplied with a spring-power which will exert a constant tension toward the left and will draw the paper-carriage in that direction a definite space immediately after each type has delivered its impression. Type-bars of any convenient construction will be secured to the circular frame of the type-plate *E* and will be operated in the customary manner by the finger-pieces bearing the characters to be printed. The machine will also be supplied with an ink-band and otherwise appropriately provided with devices for effecting the movements and objects common to type-writers. The present application is confined to the paper-carriage frame and its attachments, and the parts of the machine herein described, but not claimed, I propose to embrace in separate applications for Letters Patent. Some of said applications are now patented and bear numbers 295,469, 313,973, 341,084, and an anterior application, No. 141,685, was filed June 23, 1879.

When it is desired to operate the machine, the paper to be printed upon is passed around the platen *S*, being inserted between its surface and the rear portions of the bars *W*, and the paper-carriage frame carrying the platen *S* drawn to the right until the pointer *C'* is directly over the character on the scale *F'*, (indicated by zero,) when the line of printing may be proceeded with by operating the type-bars in the customary manner, the frame *O*, carrying the paper, being drawn to the left by the spring-power aforesaid a distance equal to the width of the letter printed each time a key operating a type-bar is struck. After the paper-carriage frame has traveled to the left until the end of the line has been printed the arm *g* will strike the bar *j* and elevate the disk *h*, as aforesaid, as a warning to the operator. After the arm *g* has passed over the bar *j* the disk will fall to its former position. The

arm *g* will be adjusted on the rod *R*, according to the length of the line to be printed, so that the disk will be elevated at the proper time. The paper and platen *S* are now revolved toward the rear, so as to print the next line of matter by the operation of the lever *n*, as hereinbefore described, after which the paper-carriage frame is drawn toward the right-hand end of the machine and the printing continued, as before. This operation will be followed until the page has been printed.

If it be desired to examine the matter being printed, the paper-carriage may be turned up upon the hinge-rod *N*, or the printed matter brought to the front of the platen by the operation of the lever *w*, as aforesaid.

The pointer *b* is to guide the operator in placing the paper upon the platen *S*, it being desirable that the right-hand edge of each sheet be placed up to the edge of the pointer for the purpose of having them all uniform. The pointer will of course be adjusted laterally upon the rod *R*, according to the size of the paper to be printed upon.

If in operating the machine it is discovered that an error or omission has occurred, the paper will be replaced upon the platen *S*, with the line containing the omission upon the front of the same. The paper-carriage frame is then moved either to the right or left, in the manner before described, (the type-keys being left stationary,) until the space in which the omitted letter or letters are to be printed is directly opposite the point of the indicator *C'*, which is on a line with the point at which the type strike when operated by the type-bars. The platen with the paper is then revolved toward the front by the lever *w* until the said space is centrally below the platen and on a line with the point of the indicator, when it will be in proper position to receive the impression from the type, which will be effected by actuating the type-keys, as hereinbefore set forth, and the omission thus supplied.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The stationary indicator *e'*, in combination with the rotating and longitudinally-moving platen *S* and the lever *w*, constructed substantially as described, whereby the operator is enabled to supply an omission or make a correction in the printing, substantially as set forth.

2. The rotating bar *t*, having a shoulder, *u*, in which is pivoted the lever *w*, having a spring tension laterally, in combination with the ratchet-wheel *l* and platen *S*, substantially as set forth.

3. In a type-writing machine, a plate or disk for indicating when the end of the line has been nearly reached, in combination with an arm which may be adjusted to throw the disk at the proper time, substantially as set forth.

4. In a type-writing machine, a disk or indicator hung behind a casing of a different



color, in combination with an adjustable arm which is attached to the paper-carriage frame and which will throw the indicator from behind the disk when the end of the line to be printed has been nearly reached, substantially as set forth.

5 5. The indicator *i*, hung behind the casing *h* by means of the arm *j*, in combination with the adjustable arm *g*, substantially as set forth.

10 6. The indicator *i*, of a light color, hung behind the casing *h* of darker color, by means of the arm *j*, having a flange, *k*, upon its upper edge, in combination with the adjustable arm *g*, substantially as specified.

15 7. The frame *L*, having a spring tension toward the left and mounted upon the guide-rail *K*, in combination with the paper-carriage frame *O*, hinged to frame *L*, platen *S*, bars *W*, and a means of revolving the platen, substantially as shown and described.

20 8. The paper-carriage frame composed of two cylindrical rods with end bars, *P*, and provided with the adjustable spring-bars *W*, as described, and the guide-wire *F''*, in combination with the cylindrical platen *S*, substantially as and for the purpose set forth.

25 9. The arm *g*, having a check, *f*, and loosely

pivoted to the adjustable sleeve *d*, in combination with the disk or indicator *i*, hung behind a casing by the arm *j*, having a flange, *k*, upon its upper end, substantially as set forth.

30 10. The pivoted space-regulator *p*, having a spring tension and provided with the faces *r s*, in combination with the lever *n*, dog *m*, ratchet *l*, and platen *S*, substantially as specified.

35 11. The combination of the lever *n*, extending in front and down toward the key-board and having pivoted on its upper end the dog *m*, having curved branches, with bar *t*, loosely mounted on the platen-axle, and lever *w*, substantially as and for the purpose described.

40 12. As a paper-table for a type-writer, the spring-bars *W*, adjustable upon the rod *N*, and having their lower ends curved under the platen *S* and their upper ends curved upward and toward the rear thereof, in combination with cylindrical platen *S*, substantially as specified.

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50  
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