

4 Sheets—Sheet 1.

No. 420,843.

Patented Feb. 4, 1890.

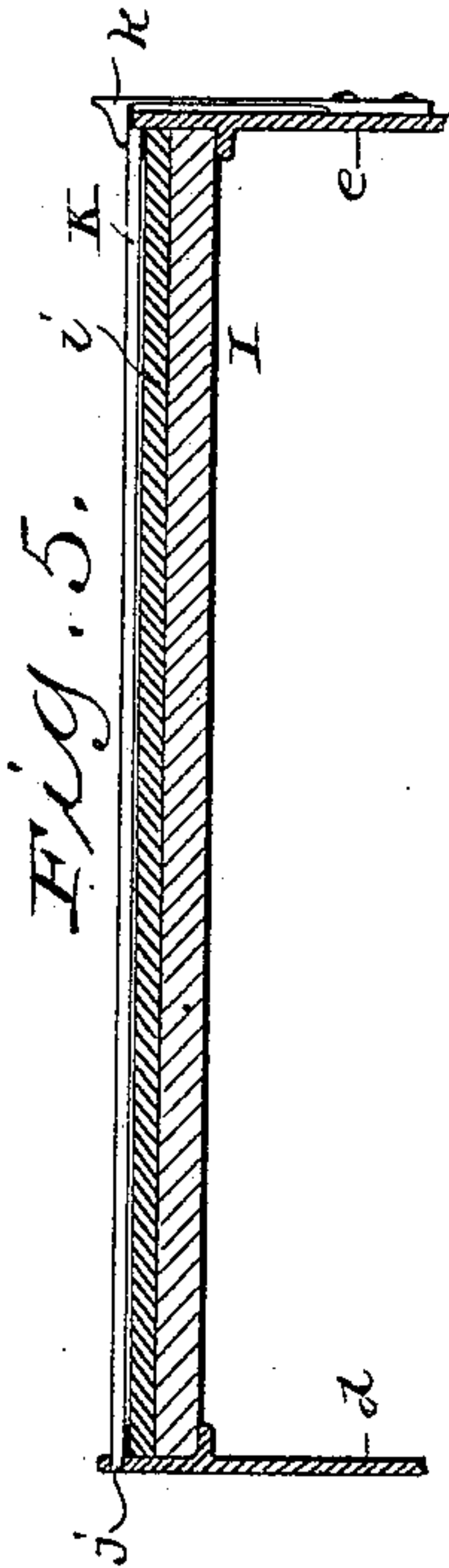
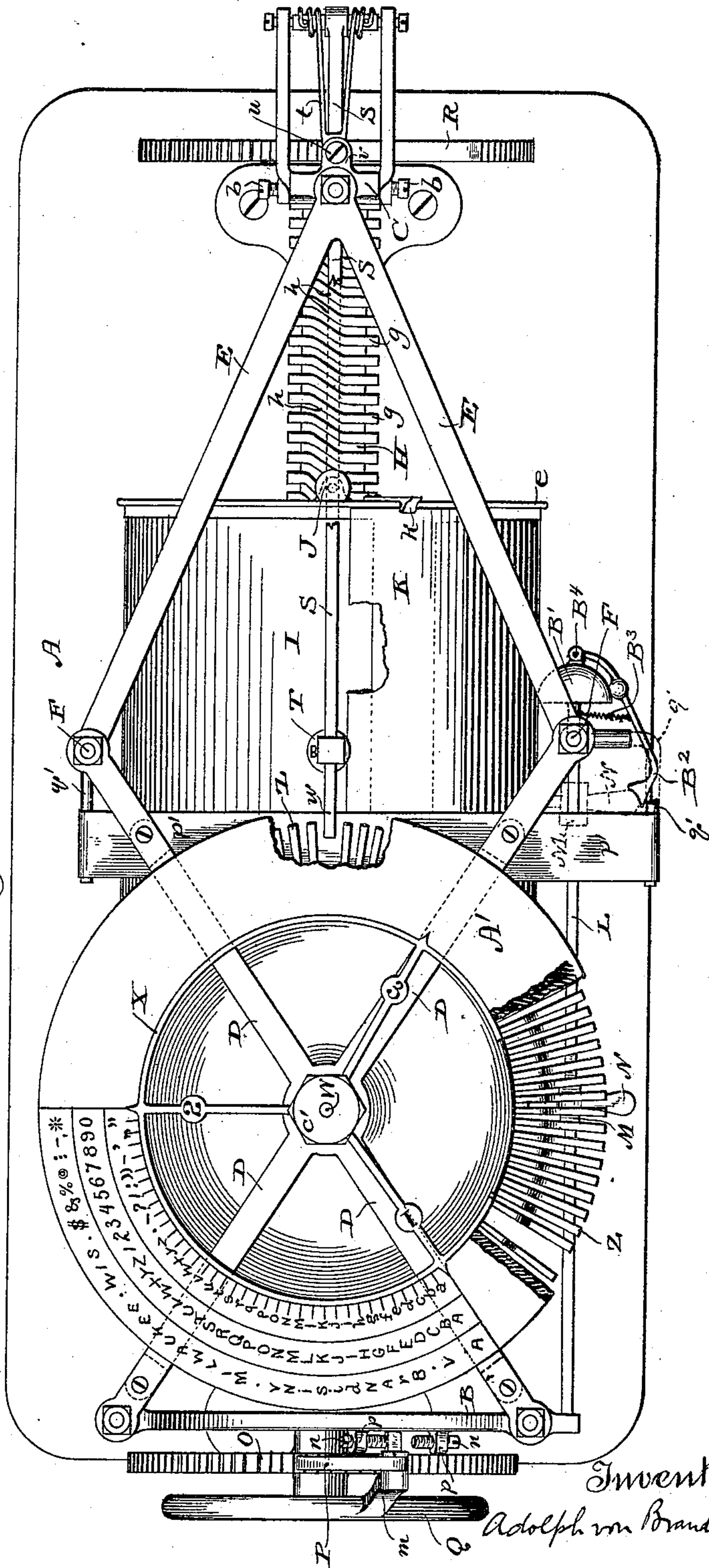


Fig. 5.

Fig. 1.



Witnesses  
Geo. W. Joung.  
N. E. Oliphant

Inventor  
Adolph von Brandis  
By *John H. Underwood*  
Attorneys

(No Model.)

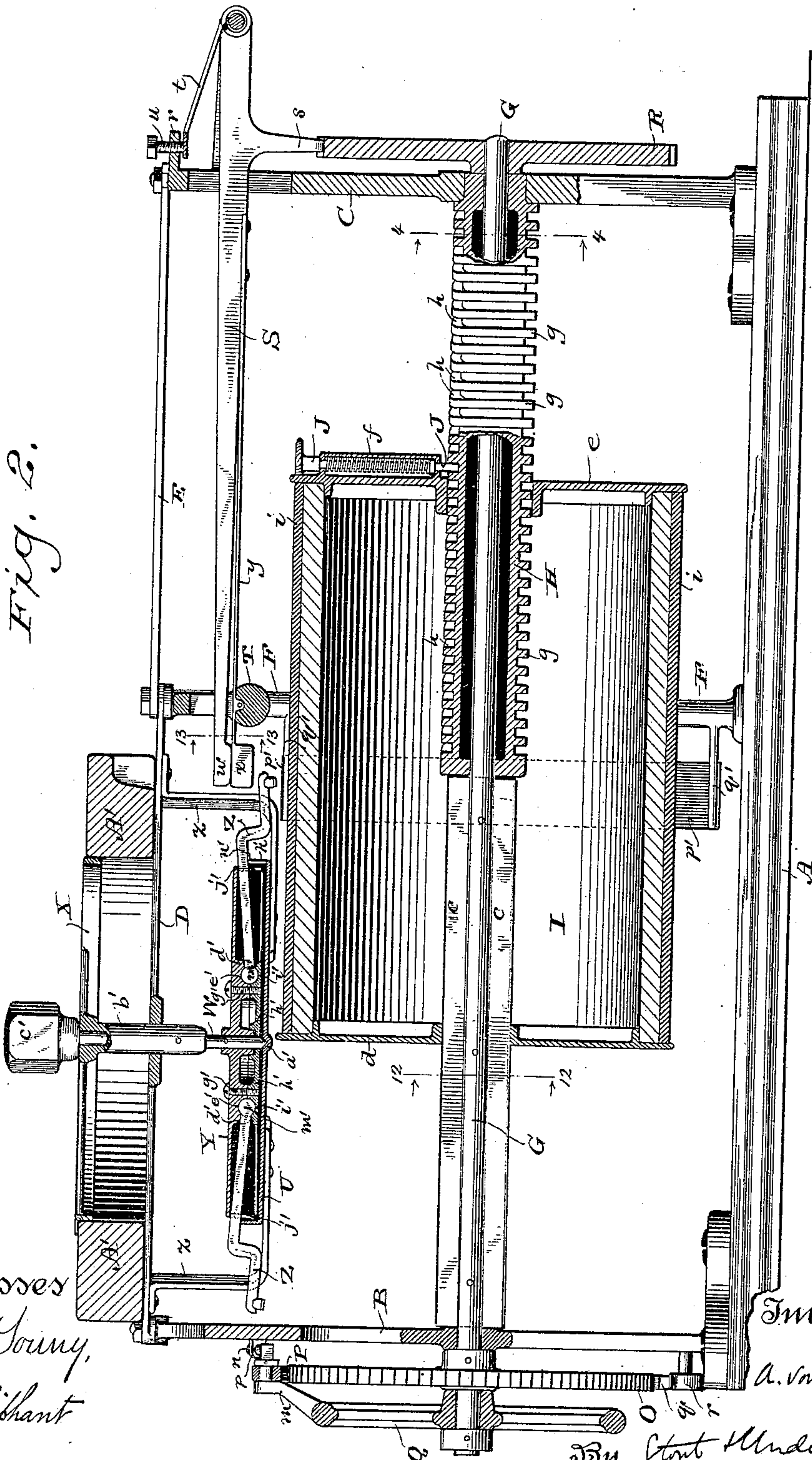
4 Sheets—Sheet 2.

A. VON BRANDIS.  
TYPE WRITING MACHINE.

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*Fig. 2.*



Witnesses  
Geo. W. Young,  
N. E. Oliphant

Inventor  
A. von Brandis

By *John Underwood*  
Attorneys



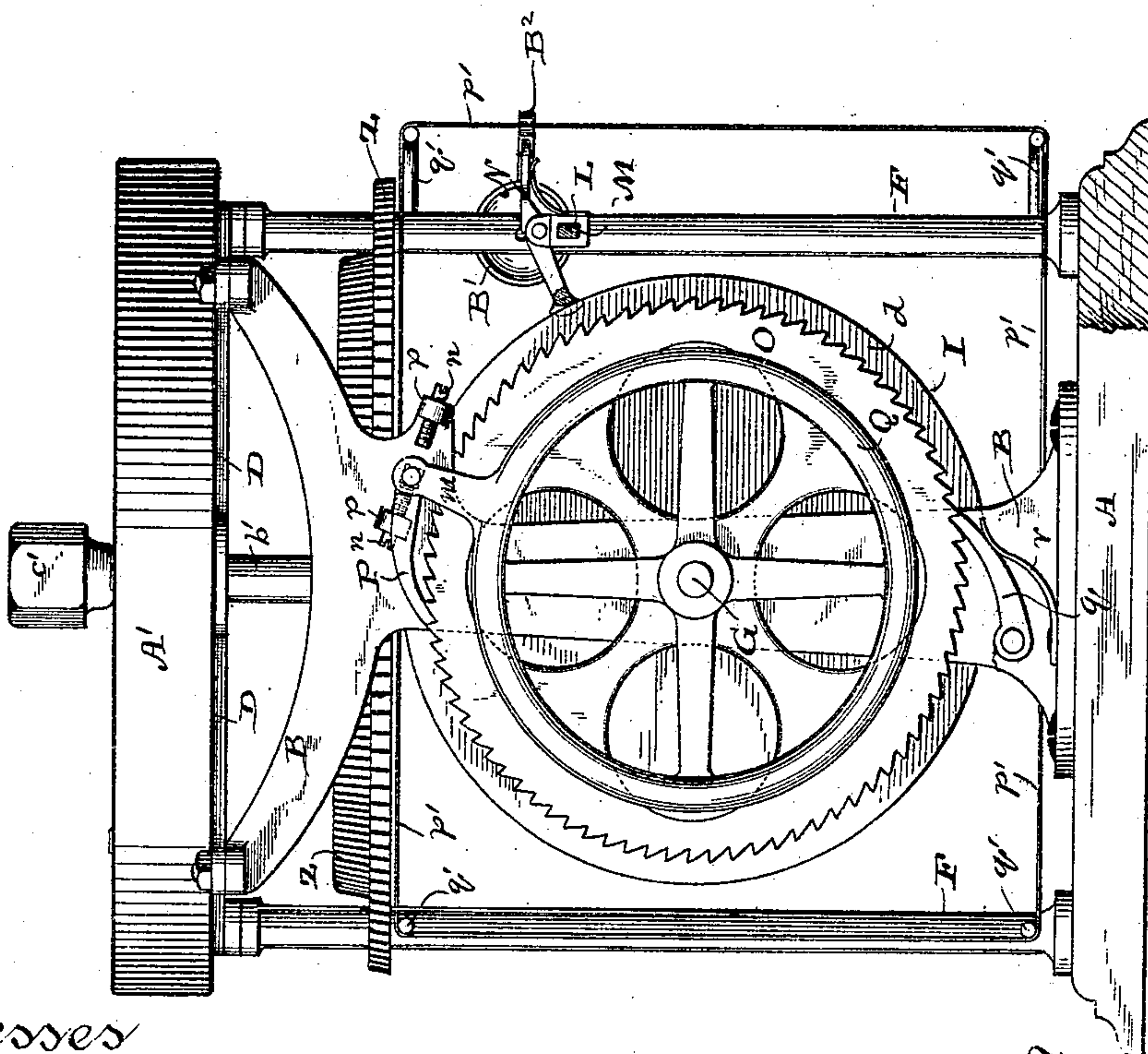
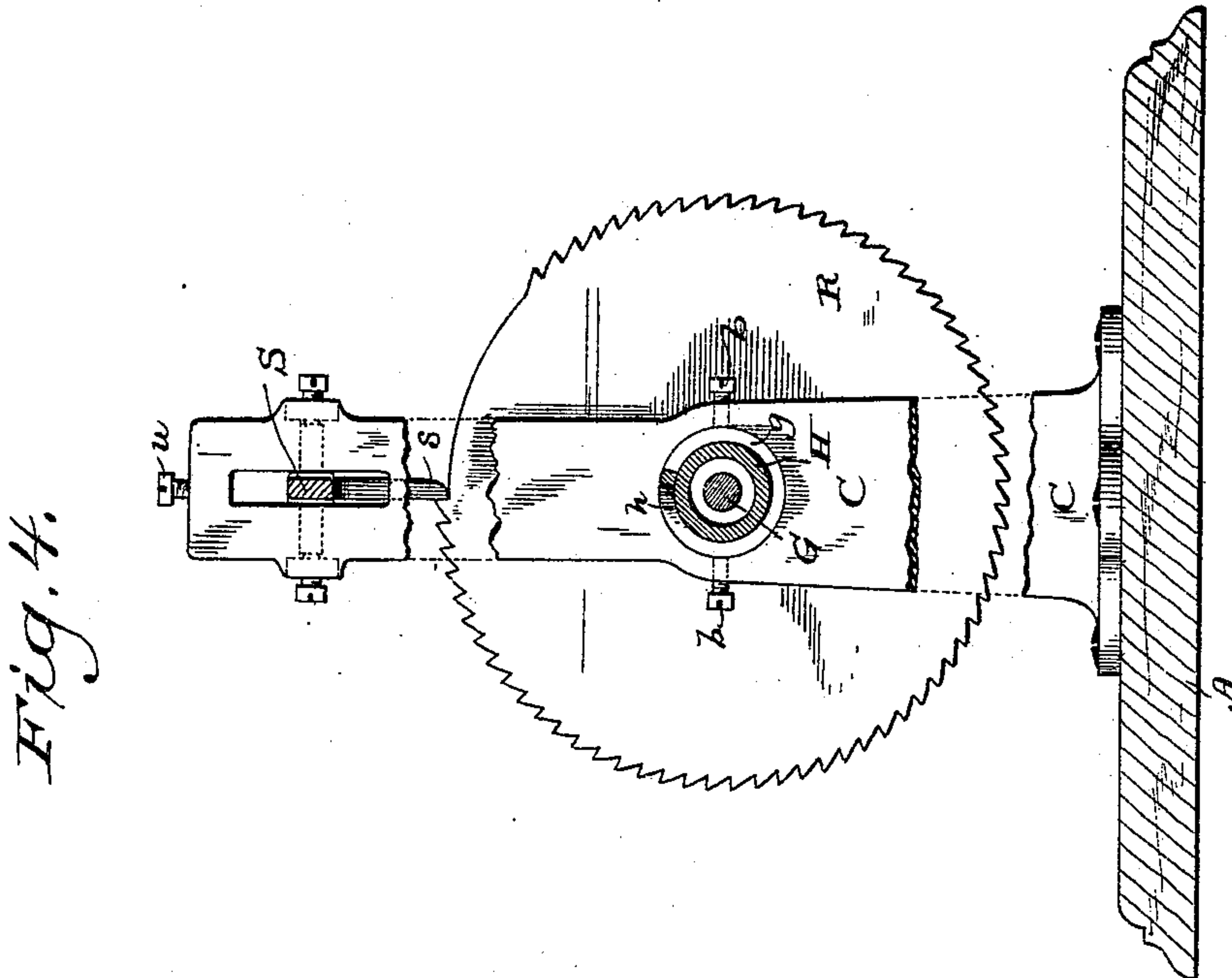
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4 Sheets—Sheet 3.

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Witnesses  
Geo. W. Young.  
N. E. Oliphant

Inventor  
Adolph von Brandt  
By ~~John~~ Woodward  
Attorneys

(No Model.)

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Fig. 9.

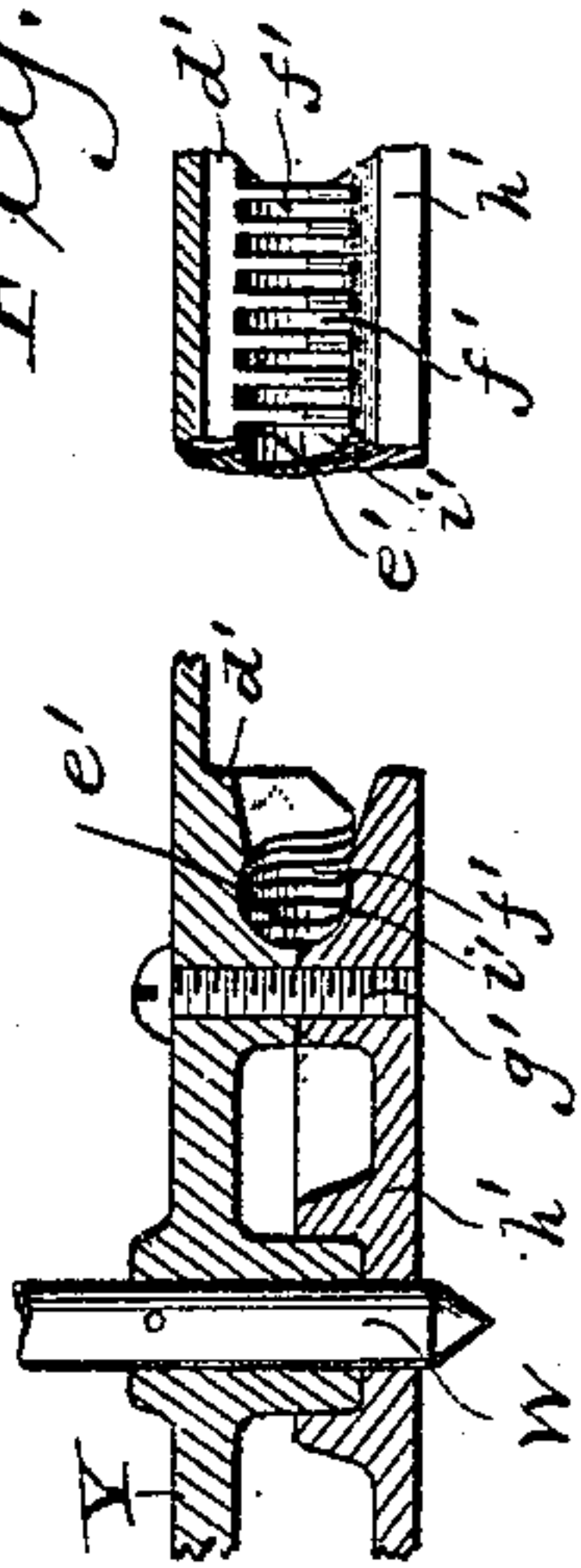


Fig. 8.

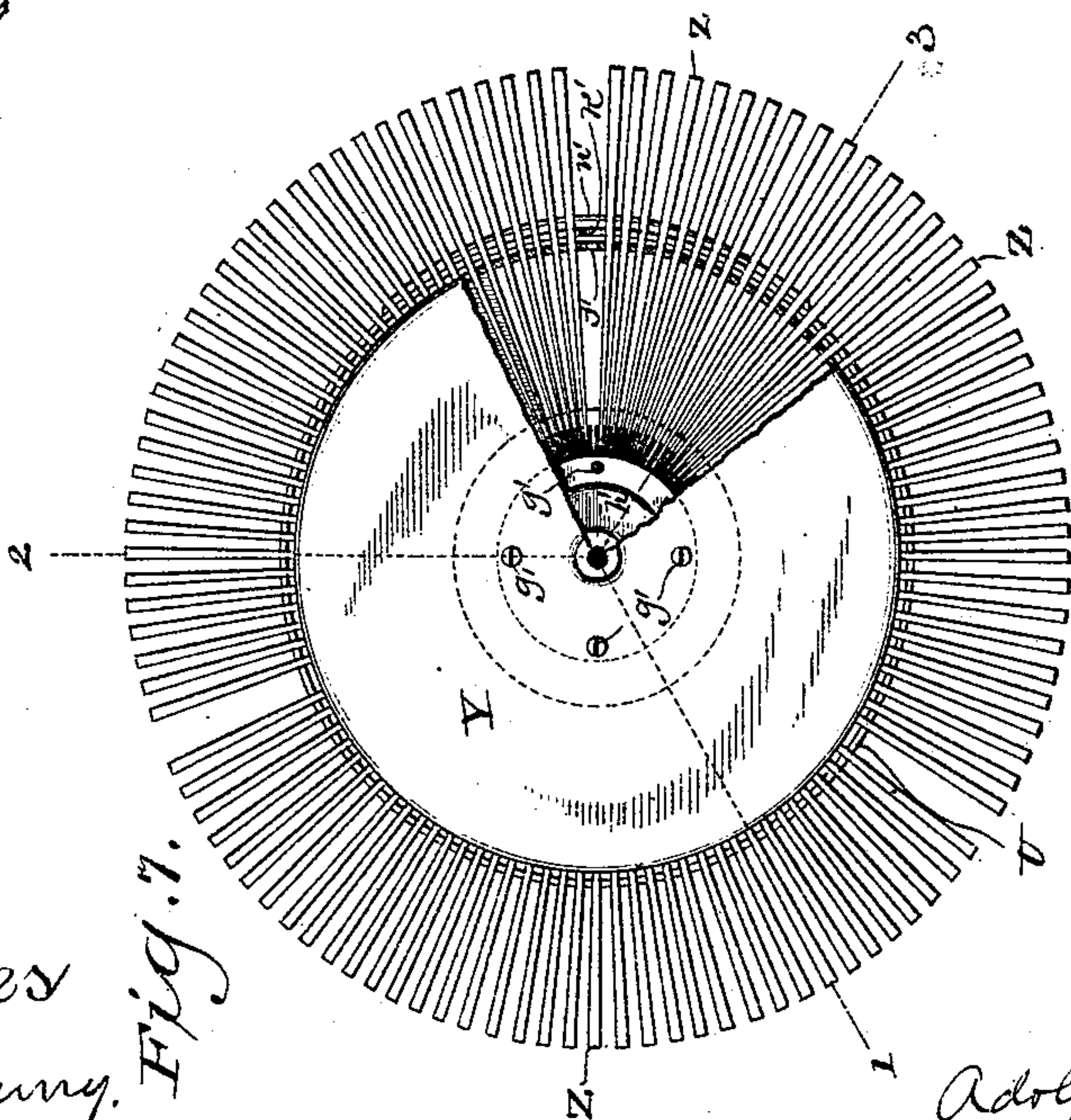


Fig. 7.

Fig. 10.

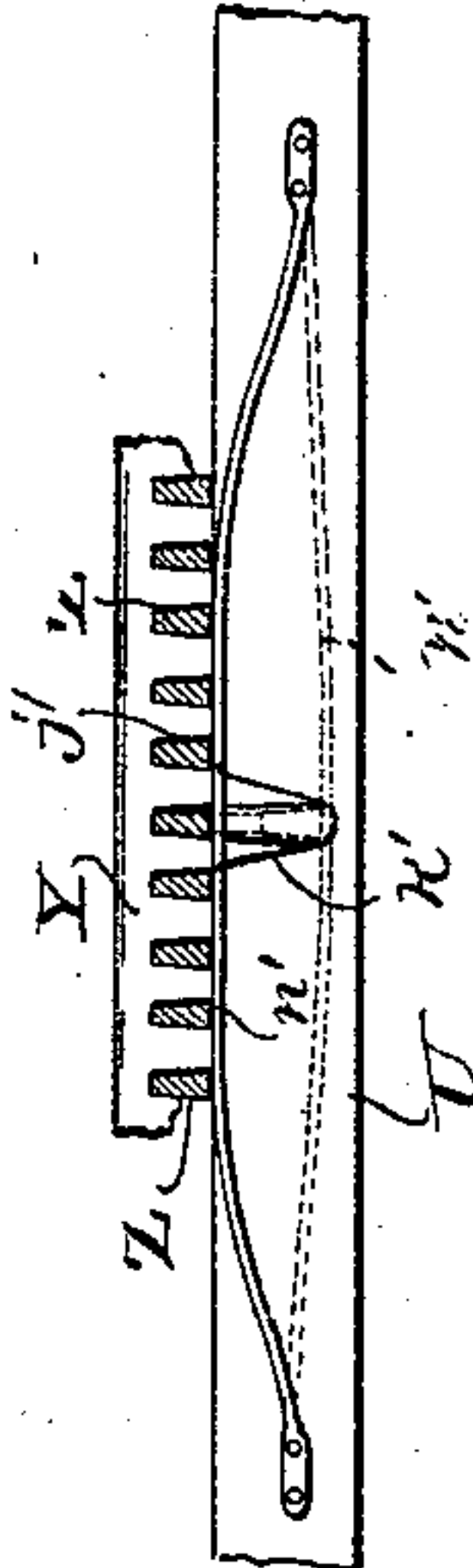


Fig. 11.

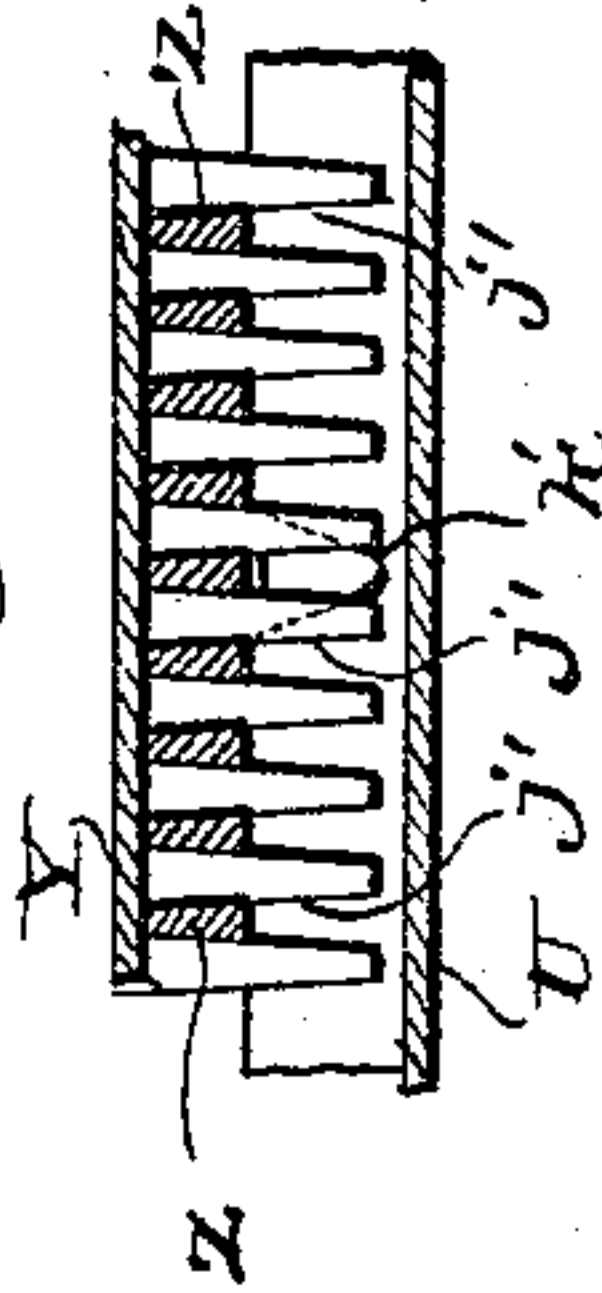


Fig. 12.

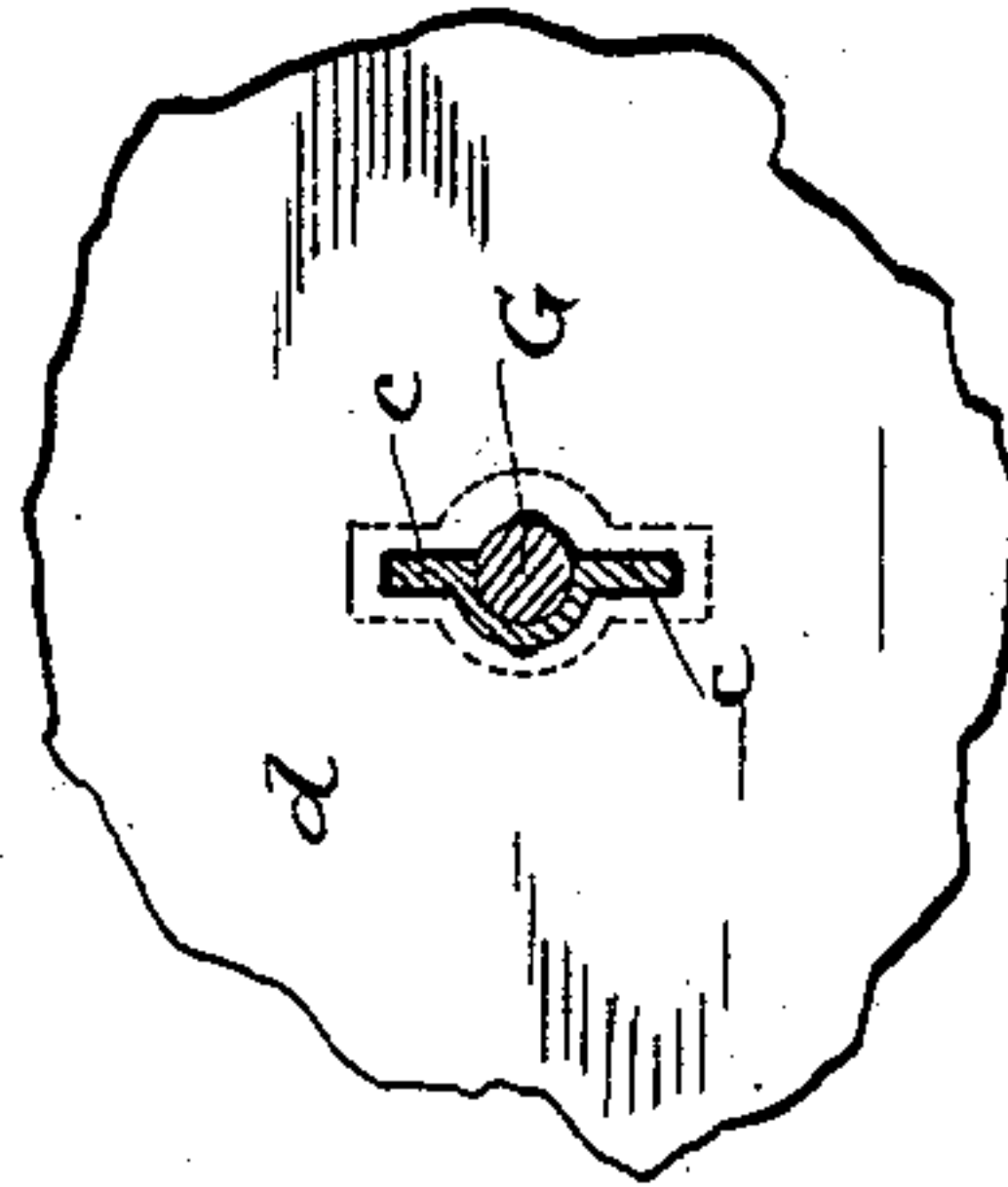
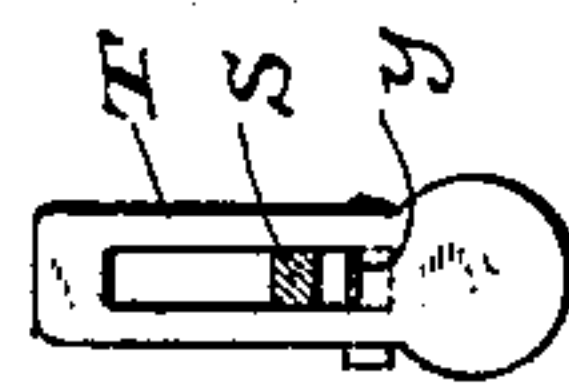


Fig. 13.



Witnesses  
Geo. W. Soumy.  
N. E. Oliphant

Inventor.  
Adolph von Brandis  
By *John H. Wood*  
Attorneys



# UNITED STATES PATENT OFFICE.

ADOLPH VON BRANDIS, OF MILWAUKEE, WISCONSIN.

## TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 420,843, dated February 4, 1890.

Application filed October 11, 1888. Serial No. 287,836. (No model.)

*To all whom it may concern:*

Be it known that I, ADOLPH VON BRANDIS, of Milwaukee, in the county of Milwaukee, and in the State of Wisconsin, have invented certain new and useful Improvements in Type-Writing Machines; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention relates to type-writers; and it consists in certain peculiarities of construction and combination of parts, to be hereinafter described with reference to the accompanying drawings, and subsequently claimed.

In the drawings, Figure 1 represents a plan view of a type-writer constructed according to my invention; Fig. 2, a vertical longitudinal section of the same; Fig. 3, an elevation of the rear end of the machine; Fig. 4, a vertical transverse section taken on line 4 4 of Fig. 2; Figs. 5 and 6, detail views of a cylinder and clamp that form parts of my device; Fig. 7, a plan view of a type-nest employed in my machine; Figs. 8 to 11, inclusive, detail views of the type-nest; Fig. 12, a detail section taken on line 12 12, Fig. 2; and Fig. 13, a similar view taken on line 13 13, same figure.

Referring by letter to the drawings, A represents the base of my device, and secured to this base are vertical rear and front standards B C, having their upper ends connected by X and V shaped braces D E with the corresponding ends of posts F, that project upward from opposite sides of said base. A horizontal shaft G has one of its bearings in the standard B and another bearing in a sleeve H, that is provided upon its exterior with a series of parallel cam-grooves and supported by said shaft, said sleeve being also socketed in the standard C, where it is held against possible rotation by means of set-screws b (best illustrated in Fig. 4) or other suitable means. Between the standard B and cam-grooved sleeve H the horizontal shaft G is provided with radial wings c, that may be in the form of a plate to partially encircle said shaft and extend equally in opposite directions, as best illustrated by Fig. 12, said plate being secured in place by means of rivets, screws, or other suitable means. The shaft G and its radial wings c pass through the rear head d of a

cylinder I, and thus the latter is caused to revolve with said shaft without being restricted as to longitudinal movement. The front head e of the cylinder encircles the sleeve H and is provided with a casing f for a spring-dog J, that is designed to engage the cam-grooves on said sleeve, whereby the rotation of the shaft G will cause an automatic longitudinal movement of said cylinder at predetermined intervals. By withdrawing the dog J from engagement with the sleeve H the cylinder I can readily be moved back and forth at the pleasure of the operator.

When the dog J is in engagement with the sleeve H, the intermittent forward movement of the cylinder I arises from the fact that certain parallel portions g of said groove are at right angles to the longitudinal axis of said sleeve for the distance of three hundred degrees, (more or less,) while the remaining portions h are at obtuse angles to those g for the distance of sixty degrees (more or less) and parallel to each other. By the above construction it will be seen that at each revolution of the cylinder I the dog J will be for a certain time rotated on a true circle and then move on an oblique, this latter movement causing said cylinder to advance the predetermined distance, the latter being equal to the distance that each portion h of the spiral groove obliques from a line parallel to the axis of the shell H.

The cylinder I is preferably provided with a rubber or other elastic covering i and a detachable plate K, the latter serving as a clamp for paper placed on said cylinder. As best illustrated in Figs. 5 and 6, the clamping-plate K is provided at one end with a lug j, that fits an opening in the rear head d of the cylinder I, and is held in place by a spring-latch k, secured to the forward head e of said cylinder and arranged to overlap the adjacent end of said clamping-plate.

Secured to the rear standard B and one of the posts F is a horizontal bar L, on which is arranged a sleeve M, the latter having pivoted thereto a spring thumb-piece N, bifurcated at its inner end to normally engage the projecting rim of the cylinder-head d, whereby said sleeve is carried along on the bar by the intermittent forward movement of the cylinder I.



Fast on one of the posts F is the stem of an alarm-bell B', arranged to be struck by a hammer on a lever B<sup>2</sup>, the latter being controlled by a spring B<sup>3</sup> and pivoted at one end to the bell-stem. The free end of the lever B<sup>2</sup> is in the path of the thumb-piece N on the sleeve M, and is actuated against the force of the spring B<sup>3</sup> to bring the hammer on said lever away from the bell B' at a predetermined interval. After the thumb-piece N passes out of contact with the lever B<sup>2</sup> the latter is suddenly returned to its normal position by the contraction of the spring B<sup>3</sup> and the bell B' struck by the hammer on said lever to indicate that the cylinder I has nearly completed its travel in a forward direction.

I do not wish to be understood as confining myself to the alarm mechanism shown and described, as there are various forms of such mechanisms that may be as readily employed.

Fast on the shaft G near its rear end is a ratchet-wheel O, and engaging this ratchet-wheel is a pawl P, pivoted to an arm *m* on a wheel Q, the latter being loose on said shaft and oscillated by hand to actuate the pawl. The throw of the pawl P is regulated by means of set-screws *n*, that have their bearings in lugs *p* on the standard B and are arranged to oppose the arm *m* on the hand-wheel Q, as best illustrated in Fig. 3. The rotation of the ratchet-wheel actuates the shaft G and the cylinder I, and to prevent reverse movement of these parts a detent *q* is pivoted to the standard B and held in engagement with the ratchet-wheel O by means of a spring *r*, secured to the foot of said standard.

A ratchet-wheel R is fast on the forward end of the shaft G and is engaged by a pawl *s*, depending from a lever S, the latter being fulcrumed to brackets that project from the front standard C of the machine, said lever being retained in its normal position by means of a spring *t*, the tension of this spring being regulated by a set-screw *u*, that has its bearing in a lug *v*, projecting forward from said standard. The lever S extends back toward the rear of the machine and terminates in a head or hammer *w*, and, while this head or hammer may serve every purpose, I prefer to employ another hammer *x*, arranged directly under the one *w* and having a spring-extension *y*, that is secured to the under side of said lever near its forward end. The spring-extension *y* of the hammer *x* is rigidly connected to a slotted weight T, and through the slot in this weight I pass the lever S, as best illustrated in Fig. 2.

When the wheel R is rotated, the pawl *s* is lifted by the rise of the ratchet-teeth on said wheel, thereby raising the lever S, the latter dropping again as it passes out of contact with each tooth. The spring-extension *y* of the hammer *x* is carried up with the lever S, and when the latter falls to its normal position the momentum acquired by this move-

ment and the weight T will overcome the resistance of said spring-extension, whereby said hammer will have a more rapid downward movement against the type-bars, to be hereinafter described, than would be the case with a stiff hammer. This movement having been accomplished, the spring *y* returns the hammer *x* to its normal position and vibration ceases.

By reference to Fig. 4 it will be seen that for a certain distance there are no ratchet-teeth on the wheel R, and for this distance the plane of said wheel is on the circle of the lowest points of said ratchet-teeth, the result of this construction being that for a certain time there is no elevation of the pawl *s*, and consequently no movement of the lever S. This cessation of movement on the part of said lever agrees with the intermittent forward propulsion of the cylinder I, thereby preventing any stroke of the hammer or hammers *w x* while the latter operation is taking place.

Depending from the X-shaped brace D are brackets *z*, that support a flanged plate U, the latter being centrally provided with a step *a'* for a vertical shaft W, and fast on this shaft is the hub *b'* of a wheel X, said hub having its bearing in the X-shaped brace D. The upper end of the shaft W is provided with a hand-nut *c'*, or, if found desirable, a hand-wheel may be substituted.

Fast on the lower portion of the shaft W is a flanged plate Y, having a depending annulus *d'*, provided with an annular channel *e'* and a series of vertical serrations *f'*, as best illustrated by the detail, Figs. 8 and 9. Clamped to the annulus *d'* by means of screws *g'* or other suitable means is another annulus *h'*, that is also provided with an annular channel *i'*, the latter being in register with the one *e'* in said annulus *d'*, and, as best illustrated by Fig. 8, that portion of the annulus *h'* that extends outward from the channel *i'* is beveled. The flange on the plate Y is provided with a series of serrations *j'*, that register with the serrations *f'* in the annulus *d'*, that depends from said plate, while the opposing flange on the stationary plate U is provided with a slot *k'*, as best illustrated in Fig. 10.

Confined within the space formed by the channels *e' i'* in the annuli *d' h'* are the circular inner ends *m'* of type-bars Z, that extend outward through the serrations *f' j'* in the annulus *d'* and flanged plate Y, as best illustrated in Figs. 2 and 7.

The flange on the plate U and a spring *n'* hold the type-bars Z in their normal or raised position, and by rotating the shaft any one of these bars may be brought into register with the slot *k'* in the flange on said plate. When a type-bar is in the position just described, its outer end will be immediately under the hammer, and the blow of the latter will drive said outer end of the type-bar down against a ribbon *p'*, that is shown as



arranged on horizontal fingers  $q'$ , that project from the posts F; but any suitable ribbon-support may take the place of said fingers. The slot  $k'$  in the flange on the plate U permits the descent of a type-bar struck by the hammer, and thus an impression is had upon the paper on the cylinder I, the spring  $n'$  causing the return of said type-bar to its normal position after being acted upon by said hammer.

A circular block A' is secured to the X-shaped brace D and surrounds the wheel X, the latter being provided with one or a series of pointers, as best illustrated in Fig. 1, and marked 1 2 3. Each of the pointers corresponds to a certain group of type-bars Z, and each of these bars has its corresponding character indicated on the circular block. As shown by Fig. 1, there are three sets of characters on the block A'; but it is obvious that the number of characters and their corresponding type-bars may be indefinitely multiplied, there being a separate set of said characters for each group of said type-bars.

Between each group of the type-bars I prefer to have a space equal to the distance caused by the omission of at least one of such bars, and every time the pointer that corresponds with any particular group is brought to the starting or finishing point of the corresponding set of characters one of the spaces between the groups of type-bars will be under the hammer, and consequently there will be nothing for the latter to strike. When the parts are in the position just described, there will be no impression made upon the paper while the cylinder I is being rotated, and thus any desirable length of space may be obtained between characters, words, &c., printed on said paper.

In the operation of my machine the wheel X is worked with one hand to bring any one of the pointers to a point corresponding with a character in the set that relates to said pointer and a corresponding group of type-bars, while with the other hand the wheel Q is actuated to rotate the cylinder I and cause the hammer to strike the type-bar that has been brought into register with the slot  $k'$  in the flange on the stationary plate U.

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

1. In a type-writer, the combination of a rotative paper-carriage intermittently propelled in a forward direction, a stationary bar, a sleeve loose on the bar, a thumb-piece pivoted to the sleeve and provided with a bifurcated end for engagement with a projecting rim of the carriage, and an alarm mechanism actuated by said thumb-piece, substantially as set forth.

2. In a type-writer, the combination of a lever, a hammer provided with a spring-extension secured to the lever, a slotted weight attached to the spring-extension and arranged to embrace said lever, and means, substan-

tially as described, for actuating the latter, as set forth.

3. In a type-writer, the combination of an intermittently-rotated paper-carriage propelled at predetermined intervals in a forward direction at right angles to its rotation, a rotary adjustable type-nest, a fulcrumed hammer arranged to strike the type, a pawl connected to the hammer, a mutilated ratchet-wheel rotated with the paper-carriage and arranged to engage the pawl, and means, substantially as described, for actuating the paper-carriage and ratchet-wheel, as set forth.

4. In a type-writer, the combination of a shaft, a stationary sleeve surrounding the same and provided with a series of cam-grooves, a cylindrical paper-carriage revolvable with the shaft, a dog connecting the carriage and cam-grooves on the sleeve, a hammer provided with a depending pawl, a ratchet-wheel arranged on the shaft to engage the pawl, and a mechanism for actuating said shaft, substantially as set forth.

5. In a type-writer, the combination of a shaft, a stationary sleeve surrounding the same and provided with a series of cam-grooves, a cylindrical paper-carriage revolvable with the shaft, a dog connecting the carriage with the cam-grooves on the sleeve, a hammer having a pawl-and-ratchet connection with the shaft, a ratchet-wheel fast on the shaft, a hand-wheel loose on said shaft, and a pawl on the hand-wheel arranged to engage the ratchet-wheel, substantially as set forth.

6. In a type-writer, the combination of a shaft, a stationary sleeve surrounding the same and provided with a series of cam-grooves, a cylindrical paper-carriage revolvable with the shaft, a dog connecting the carriage with the cam-grooves on the sleeve, a rotary adjustable nest of type-bars, a lever carrying a hammer arranged to strike the type-bars at the printing-point and provided with a pawl, a ratchet-wheel arranged on the shaft to engage the lever-pawl, and a mechanism for actuating said shaft, substantially as set forth.

7. In a type-writer, the combination of a shaft, a stationary sleeve surrounding the same and provided with a series of cam-grooves, a cylindrical paper-carriage revolvable with the shaft, a dog connecting the carriage with the cam-grooves on the sleeve, a hammer having a pawl-and-ratchet connection with the shaft, a ratchet-wheel fast on the shaft, a hand-wheel loose on said shaft and provided with a pawl to engage the ratchet-wheel, and a detent for the latter, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand, at Milwaukee, in the county of Milwaukee and State of Wisconsin, in the presence of two witnesses.

ADOLPH VON BRANDIS.

Witnesses:

N. E. OLIPHANT,  
WILLIAM KLUG.