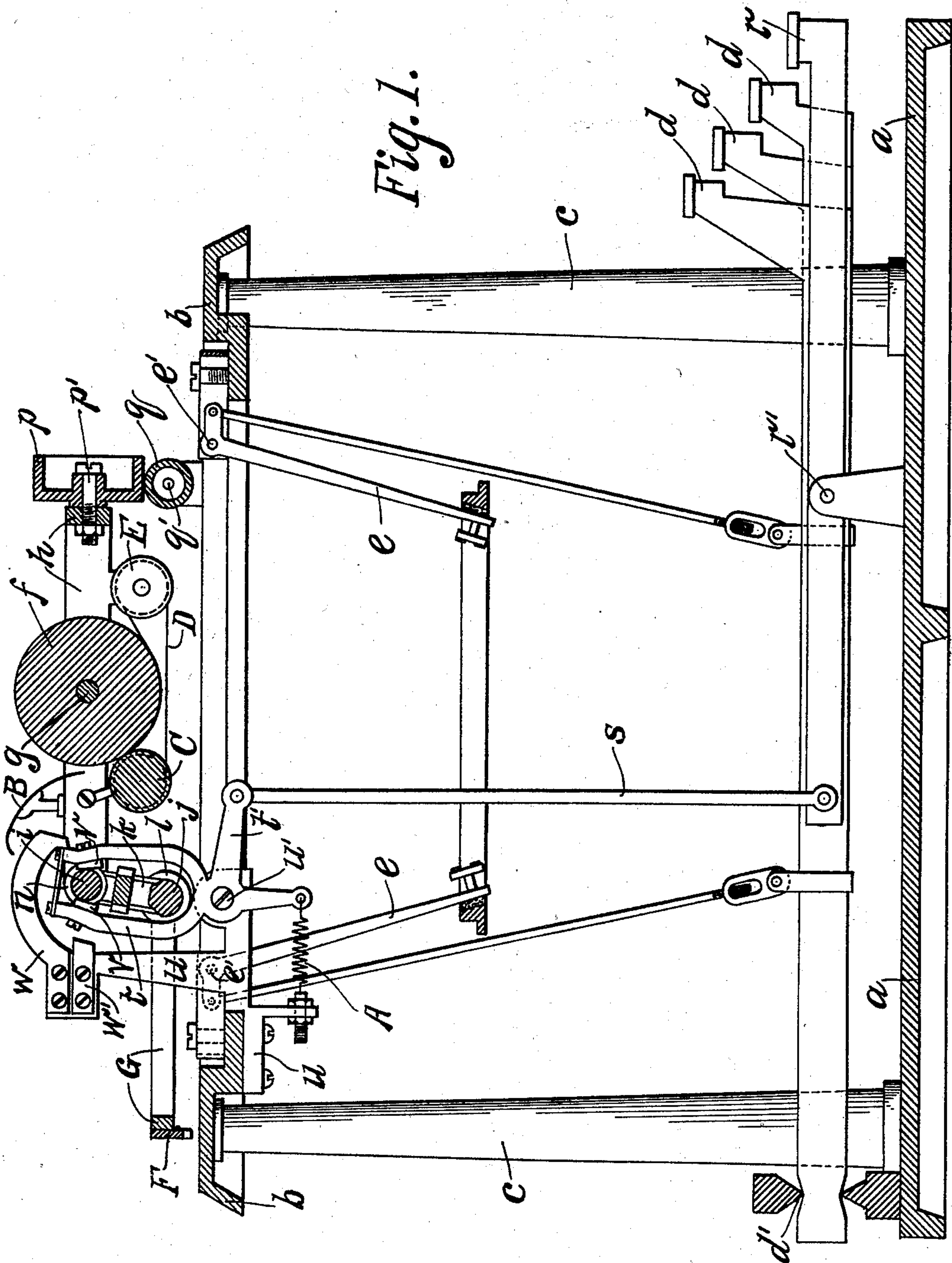


T. CAHILL.
TYPE WRITING MACHINE.

(Application filed Oct. 26, 1899.)

(No Model.)

5 Sheets—Sheet 1.



Attest.
A.M. Payson
Arthur T. Cahill.

Inventor.
Thomas Cahill.

T. CAHILL.
TYPE WRITING MACHINE.

(Application filed Oct. 26, 1899.)

(No Model.)

5 Sheets—Sheet 2.

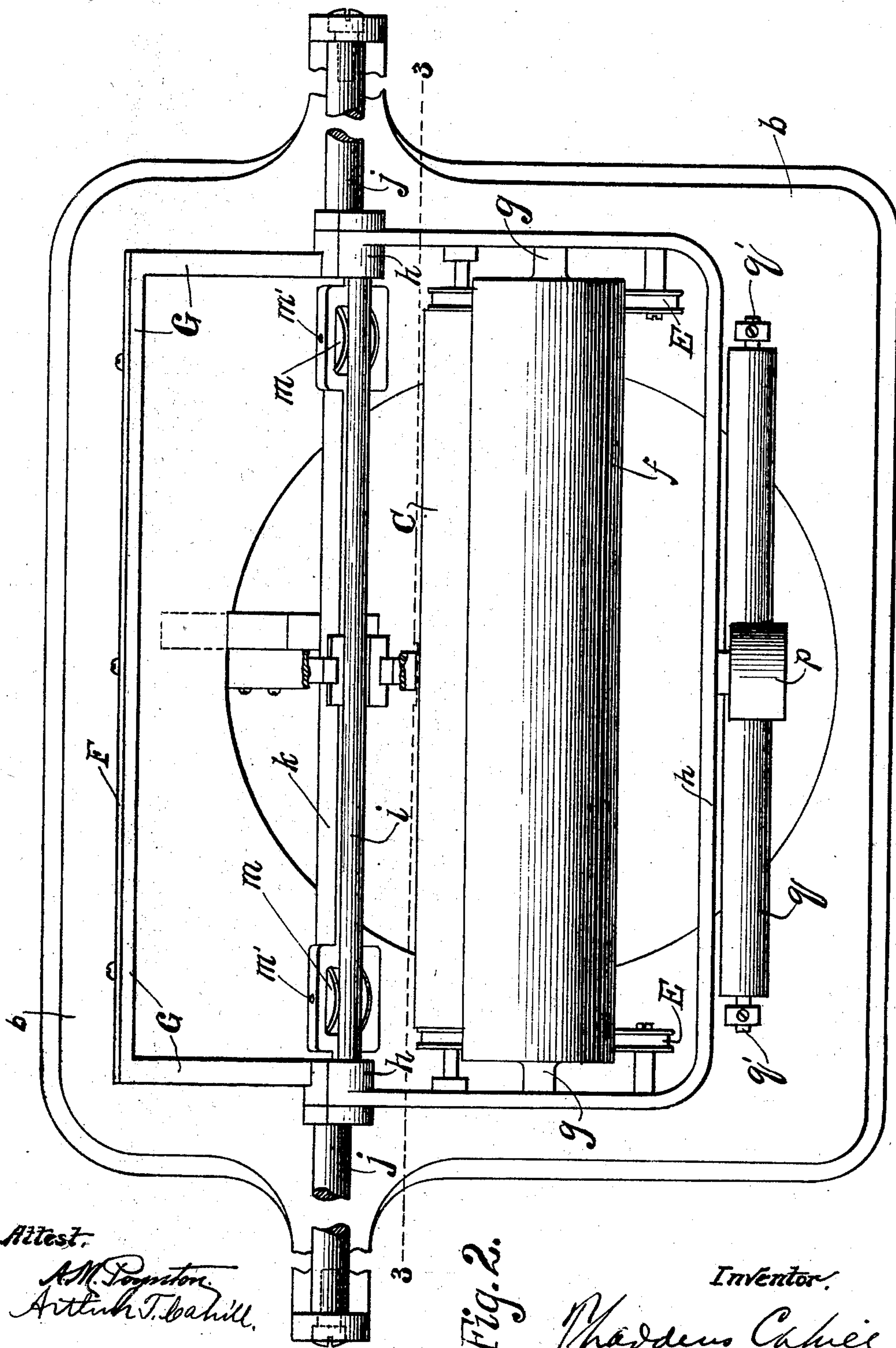


Fig. 2.

No. 705,559.

Patented July 29, 1902.

T. CAHILL.
TYPE WRITING MACHINE.

(Application filed Oct. 26, 1899.)

(No Model.)

5 Sheets—Sheet 3.

Fig. 3.

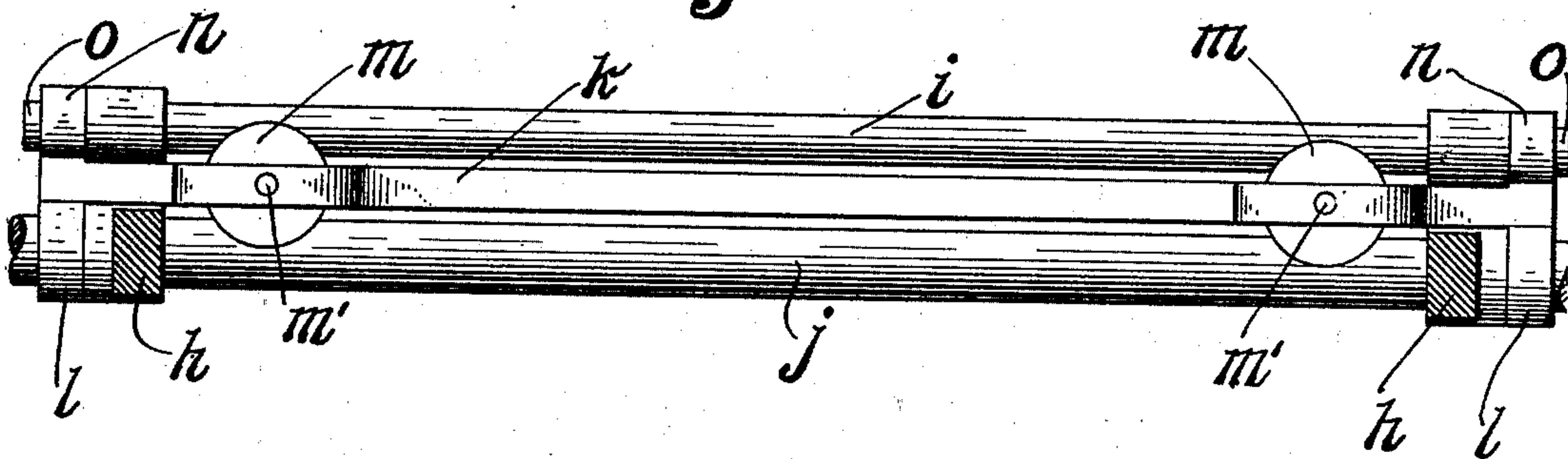
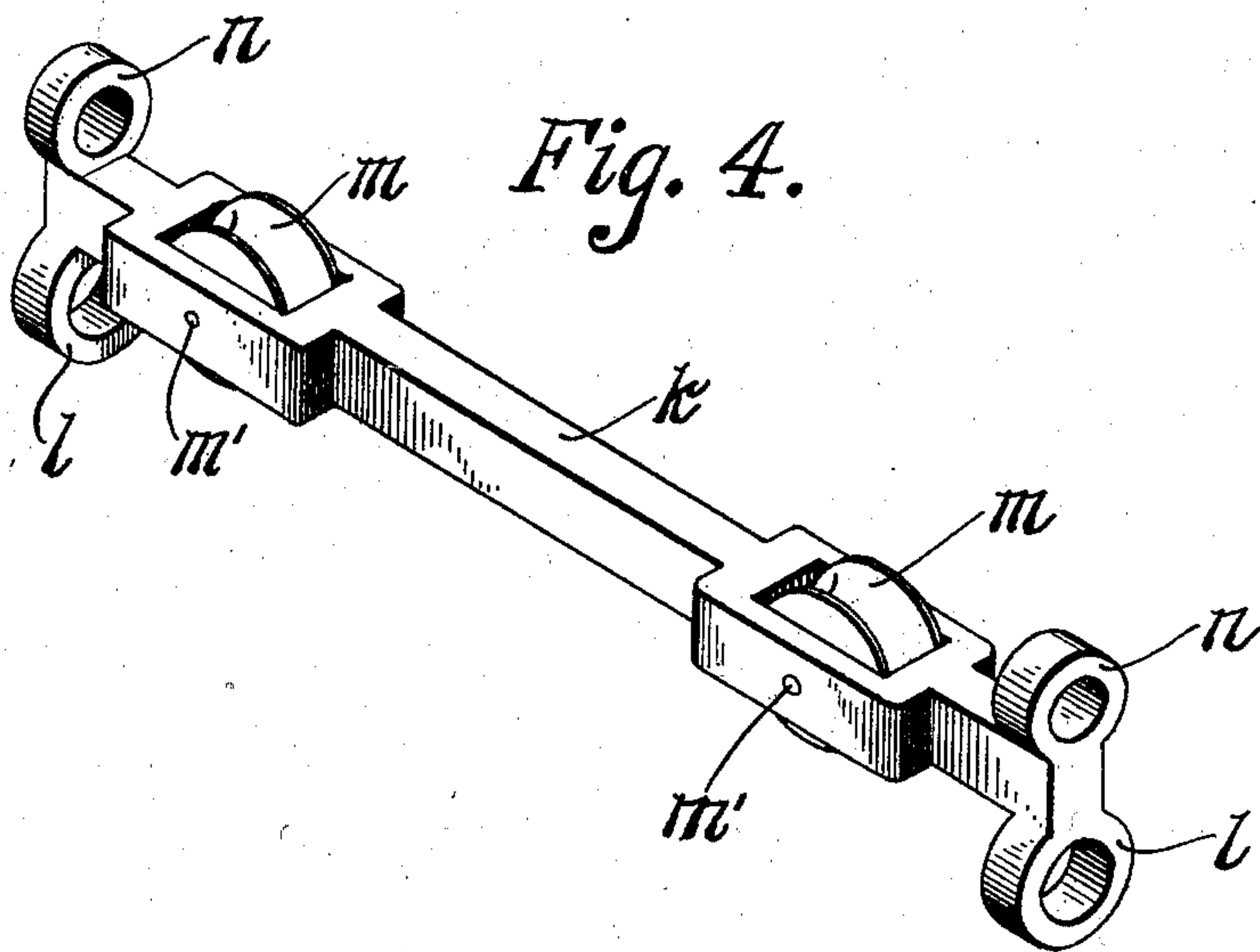


Fig. 4.



Attest.

A. M. Poynton.
Arthur T. Cahill.

Inventor.

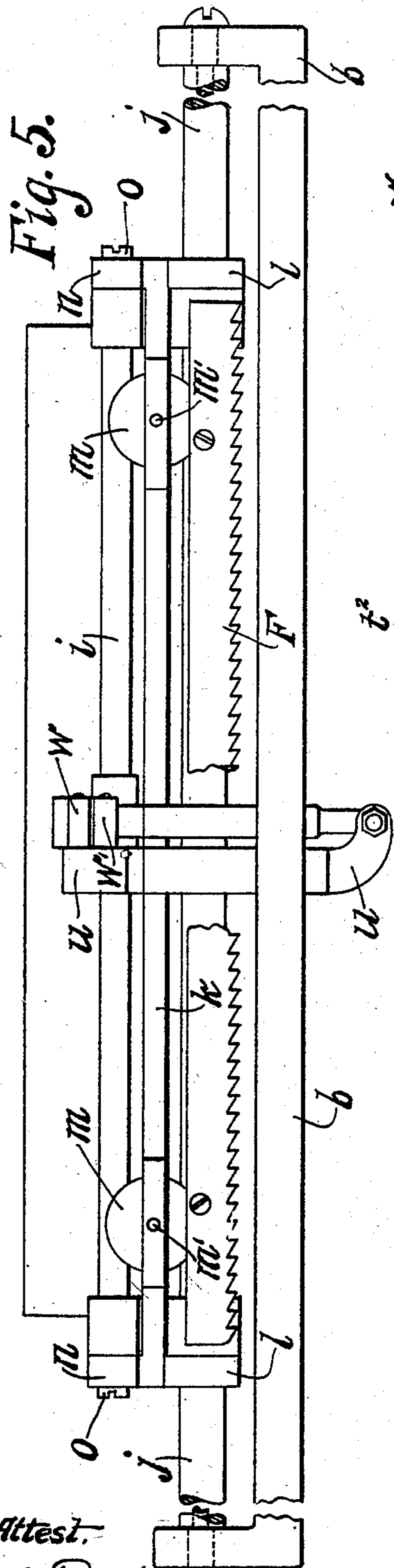
Thomas Cahill.

T. CAHILL.
TYPE WRITING MACHINE.

(Application filed Oct. 26, 1899.)

(No Model.)

5 Sheets—Sheet 4.



Attest.
Arthur T. Cahill.

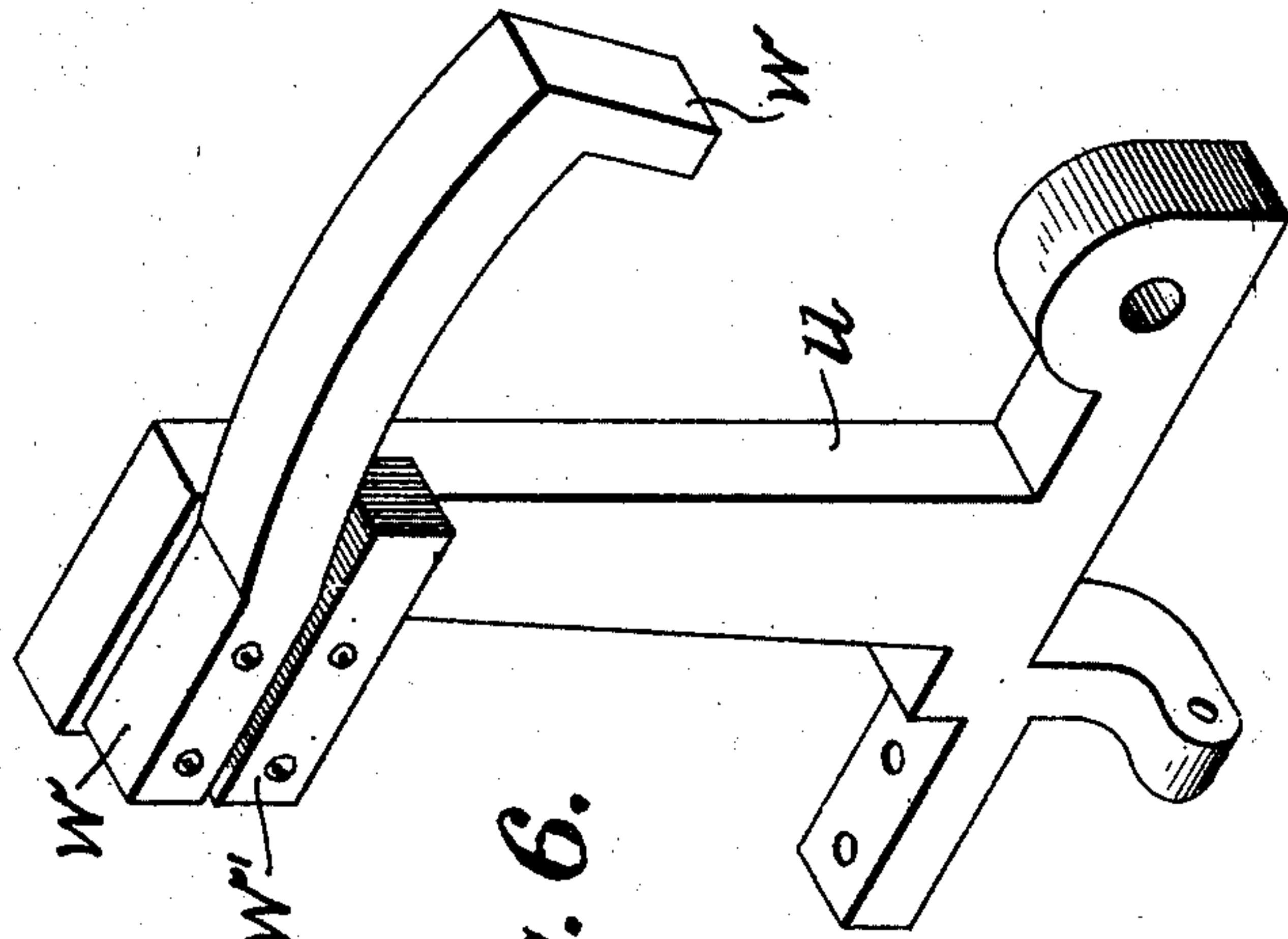
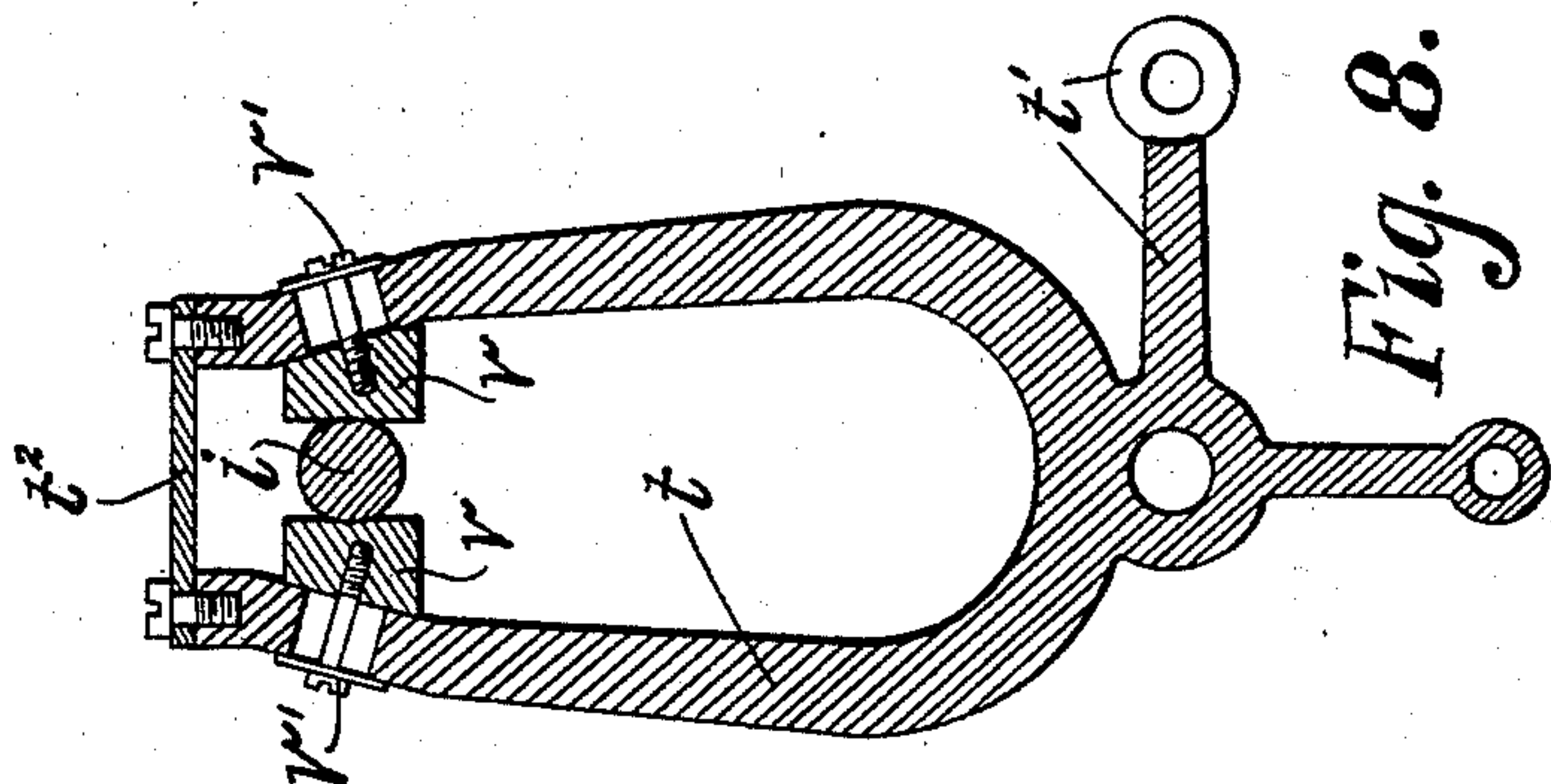
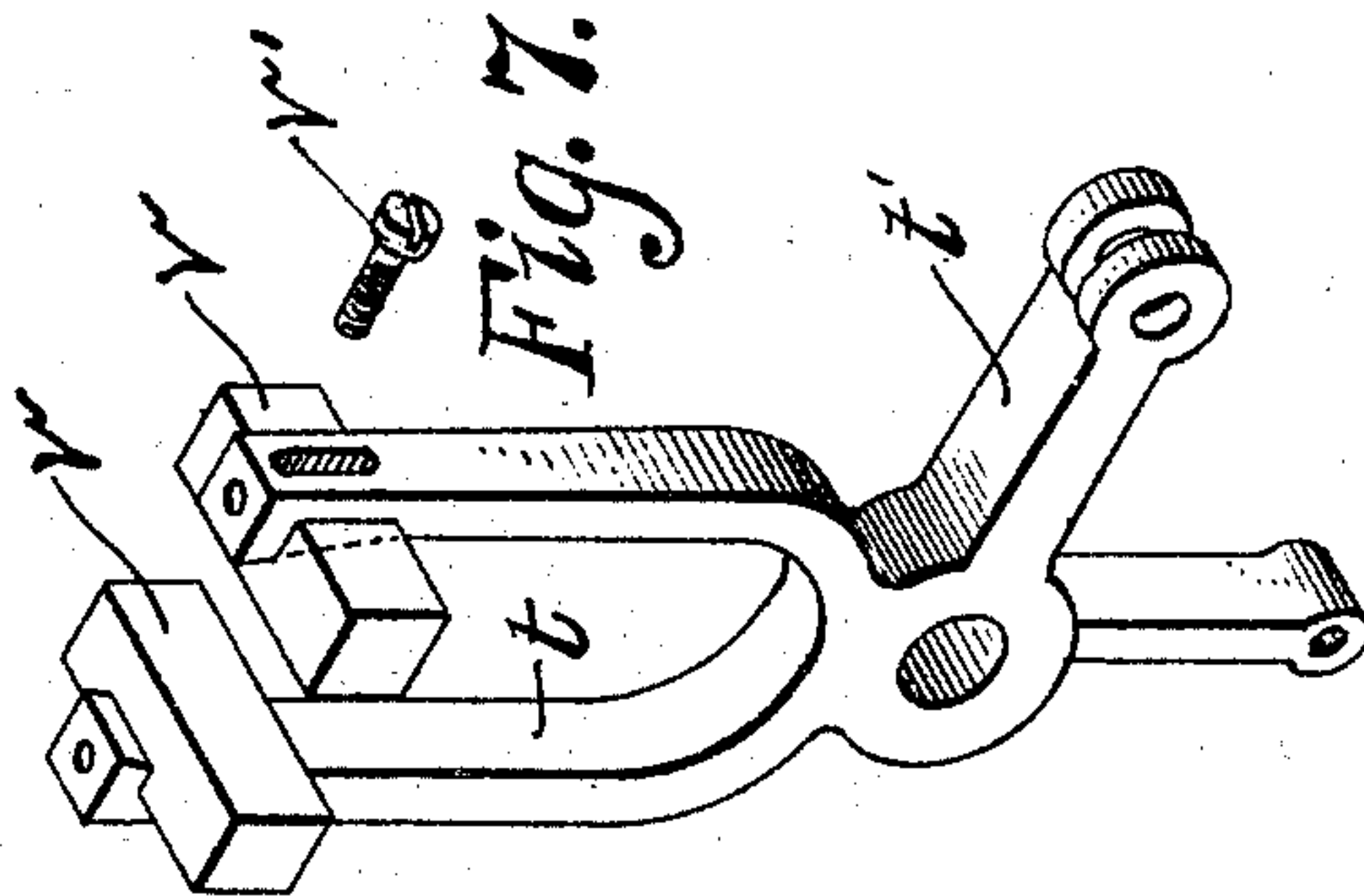


Fig. 6.

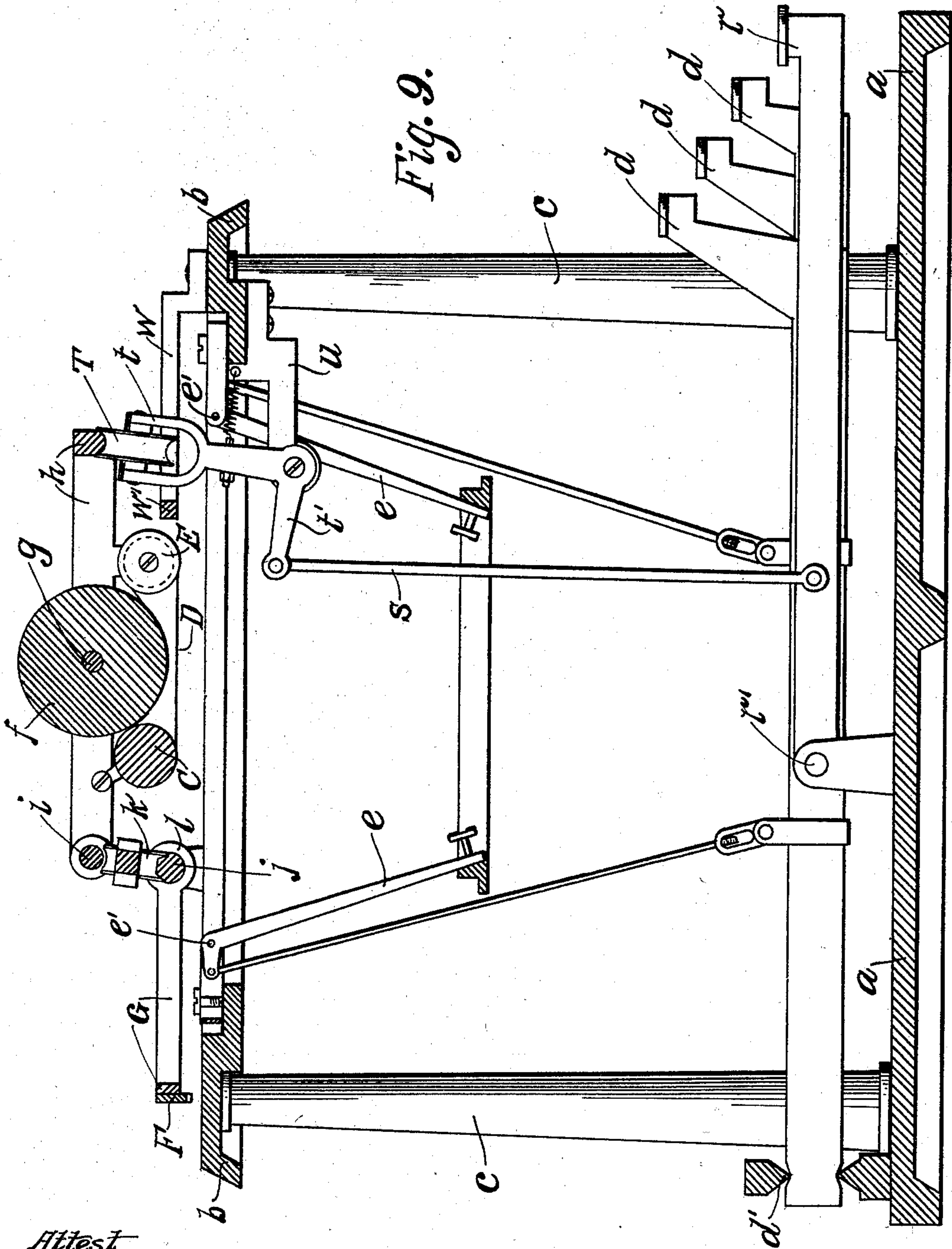
Inventor,
Thaddeus Cahill

T. CAHILL.
TYPE WRITING MACHINE.

(Application filed Oct. 26, 1899.)

(No Model.)

5 Sheets—Sheet 5.



Attest,

A. M. Poynton
Arthur T. Cahill.

Inventor.

Thomas Cahill

UNITED STATES PATENT OFFICE.

THADDEUS CAHILL, OF NEW YORK, N. Y., ASSIGNOR TO JAMES B. LAMBIE, E. HILTON JACKSON, GEORGE FREDERICK CAHILL, AND ARTHUR T. CAHILL, TRUSTEES.

TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 705,559, dated July 29, 1902.

Application filed October 26, 1899. Serial No. 734,864. (No model.)

To all whom it may concern:

Be it known that I, THADDEUS CAHILL, a citizen of the United States, and a resident of the city, county, and State of New York, temporarily residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

10 This application is a continuation of original application No. 673,086, filed March 8, 1898.

My invention relates to the paper-carriage, and has for its object to simplify and improve the construction of said carriage, and particularly the means for shifting the same from the lower-case to the upper-case position, or vice versa; and my invention consists in the parts, improvements, and combinations hereinafter described, and distinctly set forth in the statement of claim at the end hereof.

My invention is applicable generally to various classes of machines in which a shifting carriage is used in combination with type-bars carrying a plurality of letters. In particular it is applicable as well to machines having motor mechanism to impel the type-bars and also to machines having permutational type-bar-selecting mechanism as it is to those machines in which the keys act directly on the type-bars to transfer movement to them; but as the latter class of machines is simpler, more in use, and better understood in the art I shall illustrate my new carriage in connection with such a machine without, however, at all limiting myself to applying it to any one kind or class of machines.

In the accompanying drawings, Figure 1 is a sectional view, partly in elevation, through the center of a type-writing machine furnished with a carriage embodying my invention. Fig. 2 is a detail top view of my improved carriage. Fig. 3 is a detail, a rear elevation, on the line 3 3, Fig. 2, illustrating the connection between the back rod, the yoke-bar, and the platen-carrying frame. Fig. 4 is a perspective detail of the yoke-bar. Fig. 5 is a detail, a rear elevation, of the carriage mechanism. Fig. 6 is a perspective detail

of the bracket *u*, with the stops *w w'* attached thereto. Fig. 7 is a perspective detail of the shifting fork *t*, with the bearing-blocks *v v*, carried thereby. Fig. 8 is a detail, a vertical section through the shifting fork and bearing-blocks aforesaid, illustrating the arrangement of the same with relation to the back bar *i* of the platen-carrying frame; and Fig. 9 is a view similar to Fig. 1, illustrating a modified construction in which the shifter is applied to the front of the platen-carrying frame.

a is the bed-plate.

b is the top plate.

c c are columns rising from the bed-plate to support the top plate.

d d are the printing-keys controlling the type-bars *e e*, said keys being centered at *d'* and said type-bars at *e' e'*.

f is the rotatable platen or paper roll, and *g* is the center rod for said platen, whereby it is pivoted to the platen-frame, which consists of a front and end part *h* and a back bar *i*, firmly attached thereto.

j is the back rod, upon which the carriage runs and which is pivoted in ears or lugs that rise from the top plate *b*.

k is a yoke-bar furnished with lugs *l l*, drilled to fit the back rod *j*, and also with wheels *m m*, centered at *m' m'* to ride on said back rod, and also with other lugs *n n*, drilled to receive shoulder-screws *o o*, which enter the back rod *i* of the carriage-frame and whereby the platen-carrying frame is pivoted to the yoke-bar *k*. A wheel *p*, pivoted at *p'* to the front of the platen-carrying frame *h*, supports the carriage in front, rolling upon a roll *q*, centered at *q'*.

r is the space-key, centered at *r'* and connected by the rod *s* with the arm *t'* of the shifting fork *t*, which is centered upon a shoulder-screw or forced pin *u'*, set fast in the bracket *u*, which bracket is screwed fast to the lower side of the top plate *b*. The fork *t*, the prongs of which are tied at the top by the piece *t''*, straddles the back rod *j* and the yoke-bar *k* and carries near its top adjustable bearing-pieces *v v*, which are shaped as shown (see Figs. 1, 7, and 8) and secured in place

by screws $v' v'$, and adjustable stops $w w'$, attached to the bracket u , serve to limit the play of the shifting fork t . Between the adjustable bearing-pieces $v v$ lies the back bar i of the platen-carrying frame. A contractile spring A holds the platen-carrying frame normally in the forward or lower-case position, with the shifting fork t resting against the stop w . The space-key r when depressed in front by the operator rising back of its fulcrum through the rod s rocks the shifting fork t , which acting directly upon the back bar of the platen-carrying frame i moves the platen into the upper-case position, in which the shifting fork t is arrested by the stop w' .

B is the paper-shelf.

C is the roll which serves to press the paper against the platen.

D is the usual rubber band running around the roll C and the front pulley E.

F is the rack, and G the rack-carrying frame.

In all the shifting carriage devices heretofore constructed, so far as I am aware, a shifting rod is used, located usually at the front of the machine and upon which the carriage runs, said rod being parallel with the platen and having no longitudinal movement, but only a shifting movement. The point of application of power to shift the carriage to this rod in all the machines heretofore constructed, so far as I am aware, is always at the same point or points on the rod, but at points constantly varying with relation to the printing-point as the printing of the line progresses and the carriage moves down the line. By my construction, it will be observed, the usual shifting rod is entirely dispensed with. The power to shift the carriage is applied directly and immediately to the platen-carrying frame itself by a shifter lying transverse to the platen, and the power to shift the platen is always applied in line with the printing-point, which is, I think, of some benefit in securing good alinement.

In Figs. 1 to 8, inclusive, the shifting fork t acts upon the back of the platen-carrying frame. That I consider to be on the whole most convenient; but it is not indispensable. The shifting fork might instead act, for example, upon the front of the platen-frame. A modification of this sort is illustrated in Fig. 9, in which the shifting fork t , placed at the front of the machine, carries a wheel T, which engages with the front bar h of the platen-carrying frame to shift said frame from the lower-case to the upper-case position, or vice versa, as required. The roll q , it will be observed, forms a track upon which the wheel p runs as the carriage moves longitudinally; but when the platen shifts from its lower-case to its upper-case position, or vice versa, the roll q turns and the wheel p rides upon it without turning. Obviously the roll q might be omitted and some other form of track or support, either shifting or non-shifting, (but

preferably shifting,) of which several are known in the art, be substituted for it.

I am aware that a non-shifting yoke-piece of different construction from that illustrated in the drawings has been used heretofore in combination with a back rod and a platen-carrying frame; but I am not aware that a shifting yoke-piece has ever been used before in combination with a back rod or a shifting platen-carrying frame.

The back rod j , it will be observed, is both a hinge and guide rod—that is to say, it is a rod which serves both as a hinge and as a guide. The hinge and guide rod may be made of the section shown in the drawings or of any other suitable section. If the hinge and guide rod be made of the cross-section illustrated in the drawings, it is preferably mounted with shoulder-screws in the usual manner (see Figs. 1 and 5) or in any other suitable manner, so that it can rotate a greater or less distance, as required.

The yoke k can be formed after the fashion illustrated in the drawings or in any other suitable fashion.

For the shifting fork t any other suitable shifting device may be substituted.

For the wheels $m m$, and, in fact, for various other elements of the construction, mechanical equivalents may of course be substituted.

Finally, I wish it to be very distinctly understood that I do not at all limit myself to the details of construction illustrated in the accompanying drawings and hereinbefore described, for obviously these may be varied by skilled mechanics within wide limits without material departure from the principles of my invention or essential change in result.

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

1. In a type-writing machine and in combination, (a) a hinge and guide rod; (b) a yoke, pivoted on said hinge and guide rod, and mounted to travel longitudinally thereon; (c) a platen; and (d) a platen-carrier, pivotally connected with the yoke aforesaid, and traveling longitudinally therewith.

2. In a type-writing machine and in combination, (a) a hinge and guide rod; (b) a yoke, pivoted on said hinge and guide rod, and mounted to travel longitudinally thereon; (c) a platen; and (d) a platen-carrier, pivotally connected with the yoke aforesaid, and traveling longitudinally therewith; the whole being constructed and arranged in such a manner that the yoke aforesaid supports the platen-carrier and affords facility to the platen-carrier to shift transversely to the line of printing, and also maintains the platen constantly in the same position of substantial parallelism with the hinge and guide rod aforesaid, upon which the yoke aforesaid and the platen-carrier connected therewith, travel.

3. In a type-writing machine and in combination, (a) a hinge and guide rod; (b) a yoke,

pivoted on said hinge and guide rod, and mounted to travel longitudinally thereon; (c) a platen; (d) a platen-carrier, pivotally connected with the yoke aforesaid, and traveling longitudinally therewith; (e) a key at the keyboard; and (f) means operated by said key for shifting the platen aforesaid from one printing position to another.

4. In a type-writing machine and in combination, (a) a platen; (b) a shifting, longitudinally-traveling platen-carrier, wherein said platen is mounted to rotate; (c) a rod mounted in the framework of the machine to lie parallel with the line of printing; (d) a member pivoted upon the rod aforesaid, and mounted to travel longitudinally thereon, said member being also pivotally connected with the platen-carrier, aforesaid, and serving both to permit the shifting of said platen and platen-carrier, and to maintain said platen in a position of substantial parallelism with the rod aforesaid.

5. In a type-writing machine and in combination, (a) a platen; (b) a shifting, longitudinally-traveling platen-carrier, wherein said platen is mounted to rotate; (c) a rod mounted in the framework of the machine to lie parallel with the line of printing; (d) a member pivoted upon the rod aforesaid, and mounted to travel longitudinally thereon; said member being also pivotally connected with the platen-carrier, aforesaid, and serving both to permit the shifting of said platen and platen-carrier, and to maintain said platen in a position of substantial parallelism with the rod aforesaid; and (e) a shifter operating to shift the platen aforesaid from one printing position to another.

6. In a type-writing machine and in combination, (a) a platen; (b) a shifting, longitudinally-traveling platen-carrier, wherein said platen is mounted to rotate; (c) a rod mounted in the framework of the machine to lie parallel with the line of printing; (d) a member pivoted upon the rod aforesaid, and mounted to travel longitudinally thereon, said member being also pivotally connected with the platen-carrier, aforesaid, and serving both to permit the shifting of said platen and platen-carrier, and to maintain said platen in a position of substantial parallelism with the rod aforesaid; (e) a shifter operating to shift the platen aforesaid from one printing position to another; and (f) a key at the keyboard controlling said shifter.

7. In a type-writing machine, the combination with a platen and a shifting, platen-carrying frame of a wheel, pivoted to the platen-carrying frame toward the front; and a longitudinal roller, whereon said wheel runs; said roller lying parallel, or nearly parallel, with the line of printing, and being mounted to turn upon its axis as the platen is shifted from one printing position to another.

8. In a type-writing machine, and in combination, (a) a platen; (b) a hinge and guide rod; (c) a yoke, pivoted upon the hinge and

guide rod aforesaid, and traveling longitudinally thereon; (d) a shifting, longitudinally-traveling, carriage-frame, pivotally connected with the yoke aforesaid, and furnished with a supporting-wheel on the side opposite the yoke aforesaid; and (e) a roller, mounted in the framework of the machine, and having its length parallel, or nearly parallel, with the line of printing; the wheel before mentioned running upon said roller as the carriage moves longitudinally; and the roller aforesaid turning on its axis as the carriage and platen shift from one printing position to another.

9. In a type-writing machine, and in combination, (a) a platen, (b) a shifting, longitudinally-traveling, carriage-frame wherein said platen is mounted; (c) an oscillating member, connected to support one side of said carriage-frame, and to travel longitudinally therewith; (d) a rod whereby said oscillating member is pivoted, and whereon said oscillating member travels with the carriage, when the carriage moves longitudinally; (e) a wheel connected to the opposite side of the carriage-frame aforesaid to support the same; (f) a roller pivoted in the framework of the machine; said wheel running upon said roller when the carriage moves longitudinally; said roller being arranged to turn upon its axis as the carriage shifts from one printing position to another; (g) a key at the keyboard; and (h) means controlled thereby for shifting the carriage aforesaid from one printing position to another.

10. In a type-writing machine, the combination with a hinge and guide rod and a platen-carrying frame, of a yoke pivoted upon said hinge and guide rod and traveling thereon; the platen-carrying frame being pivoted to said yoke.

11. In a type-writing machine, the combination, with a hinge and guide rod, of a platen-carrying frame and a yoke pivoted upon said hinge and guide rod; said yoke being pivoted to the platen-carrying frame aforesaid, and being furnished with wheels to ride upon the hinge and guide rod aforesaid.

12. In a type-writing machine, the combination, with a hinge and guide rod, of a platen-carrying frame and a yoke pivoted upon said hinge and guide rod; said yoke being pivoted to the platen-carrying frame aforesaid, and being furnished with wheels to ride upon the hinge and guide rod aforesaid; said platen-carrying frame having a wheel connected with it to support its weight in front.

13. In a type-writing machine, the combination, with a hinge and guide rod, of a platen-carrying frame and a yoke pivoted upon said hinge and guide rod; said yoke being pivoted to the platen-carrying frame aforesaid, and being furnished with wheels to ride upon the hinge and guide rod aforesaid; said platen-carrying frame having a wheel connected with it to support its weight in front; and a roller whereon the wheel last mentioned runs; said roller being pivoted in the framework of the

machine with its length parallel, or nearly parallel, with the line of printing.

14. In a type-writing machine, the combination with a hinge and guide rod and a platen-carrying frame, of a yoke *k* pivoted upon said hinge and guide rod and traveling thereon; the platen-carrying frame being pivoted to said yoke; and a shifter engaging the rear of the platen-carrying frame aforesaid, to shift the platen from one printing position to another.

15. In a type-writing machine, the combination with a hinge and guide rod and a platen-carrying frame, of a yoke *k* pivoted upon said hinge and guide rod and traveling thereon; the platen-carrying frame being pivoted to said yoke; a shift-lever engaging the platen-carrying frame aforesaid to shift the platen from one printing position to another; and a key at the keyboard for controlling said shift-lever.

16. In a type-writing machine, the combination, with a hinge and guide rod, of a platen-carrying frame and a yoke pivoted upon said hinge and guide rod; said yoke being pivoted to the platen-carrying frame aforesaid, and being furnished with wheels to ride upon the hinge and guide rod aforesaid; a shift-lever lying transverse to the platen, and acting on the platen-carrying frame aforesaid, to shift the platen from one printing position aforesaid to another; and a key at the keyboard controlling said lever.

17. In a type-writing machine and in combination, (a) a platen; (b) type-bars disposed about an arc or a circle below the platen, and striking upward toward the platen to print; some, or all, of said type-bars carrying a plurality of types; (c) a shifting, longitudinally-traveling platen-carrier, wherein the platen aforesaid is mounted to rotate; (d) a rod, mounted in the framework of the machine to lie parallel with the line of printing; (e) a member pivoted upon the rod aforesaid, and mounted to travel longitudinally thereon, said member being also pivotally connected with the platen-carrier, aforesaid, and serving both to permit the shifting of said platen and platen-carrier, and to maintain said platen in a position of substantial parallelism with the rod aforesaid.

18. In a type-writing machine and in combination, (a) a platen; (b) type-bars disposed about an arc or a circle below the platen, and striking upward toward the platen to print, some, or all, of said type-bars carrying a plurality of types; (c) a shifting, longitudinally-traveling platen-carrier, wherein said platen is mounted to rotate; (d) a rod mounted in the framework of the machine to lie parallel with the line of printing; (e) a member pivoted upon the rod aforesaid, and mounted to travel longitudinally thereon; said member being also pivotally connected with the platen-carrier, aforesaid, and serving both to permit the shifting of said platen and platen-carrier, and to maintain said platen in a position of substantial parallelism with the rod aforesaid; and (f) a shifter operating to shift the platen aforesaid from one printing position to another.

19. In a type-writing machine and in combination, (a) a platen; (b) type-bars disposed about an arc or a circle below the platen, and striking upward toward the platen to print; some, or all, of said type-bars carrying a plurality of types; (c) a shifting, longitudinally-traveling platen-carrier, wherein the platen aforesaid is mounted to rotate; (d) a rod mounted in the framework of the machine to lie parallel with the line of printing; (e) a member pivoted upon the rod aforesaid, and mounted to travel longitudinally thereon, said member being also pivotally connected with the platen-carrier, aforesaid, and serving both to permit the shifting of said platen and platen-carrier, and to maintain said platen in a position of substantial parallelism with the rod aforesaid; (f) a shifter operating to shift the platen aforesaid from one printing position to another; and (g) a key at the keyboard controlling said shifter.

In testimony whereof I have hereunto set my hand at Washington, in the District of Columbia, this 26th day of October, A. D. 1899, in the presence of the subscribing witnesses whose names are hereto affixed.

THADDEUS CAHILL.

Witnesses:

ARTHUR T. CAHILL,
H. L. BISSELLE.