

(No Model.)

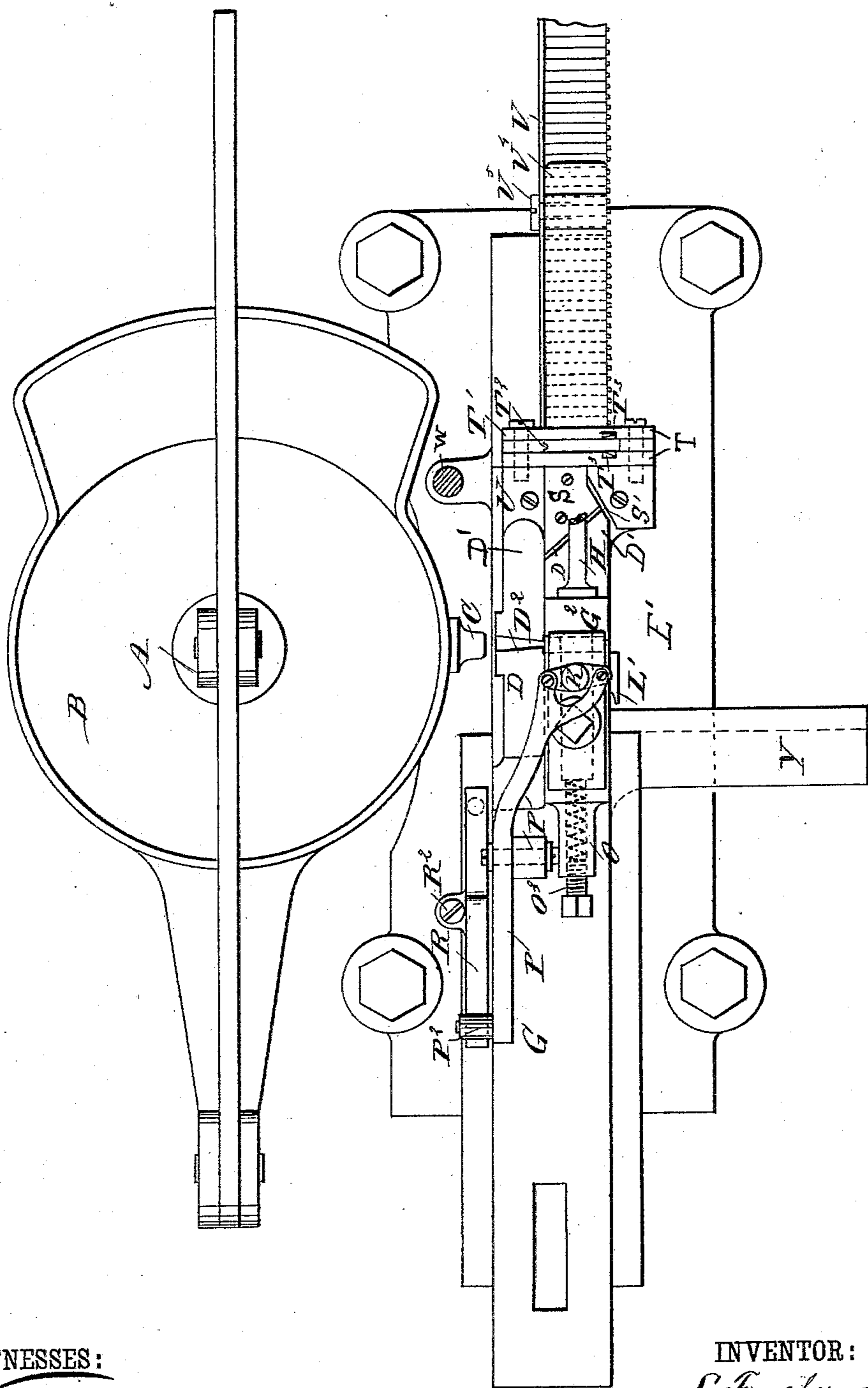
5 Sheets—Sheet 1.

L. & A. FOUCHER.
MACHINE FOR CASTING AND FINISHING TYPE.

No. 359,779.

Patented Mar. 22, 1887.

Fig. 1



WITNESSES:

C. Neveu

C. Sedgwick

INVENTOR:

L. Foucher

A. Foucher

BY

Munn & Co

ATTORNEYS.

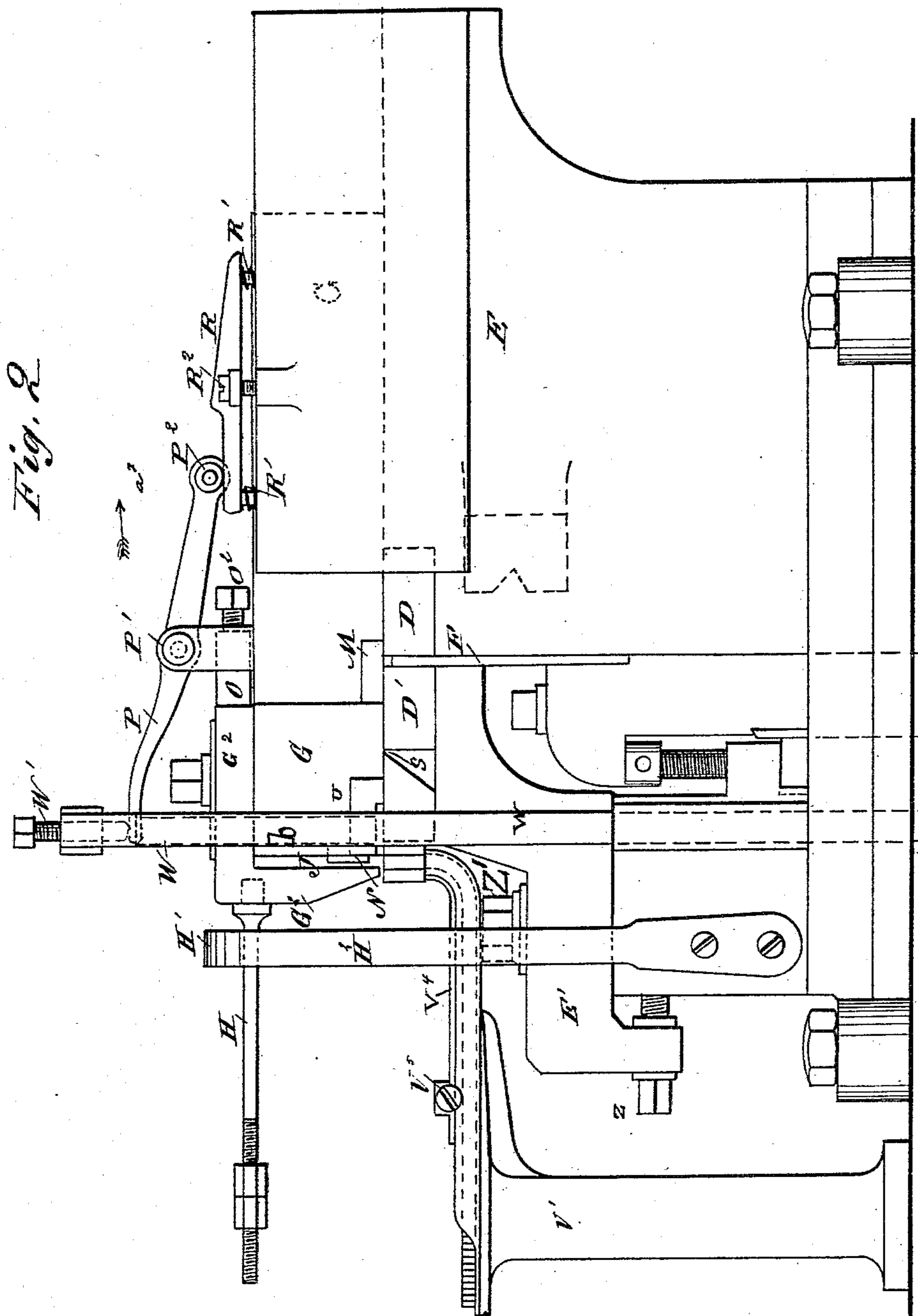
(No Model.)

5 Sheets—Sheet 2.

L. & A. FOUCHER.
MACHINE FOR CASTING AND FINISHING TYPE.

No. 359,779.

Patented Mar. 22, 1887.



WITNESSES :

C. Neveu
C. Sedgewick

INVENTOR:

BY
L. Foucher
A. Foucher
Munn & Co
ATTORNEYS.

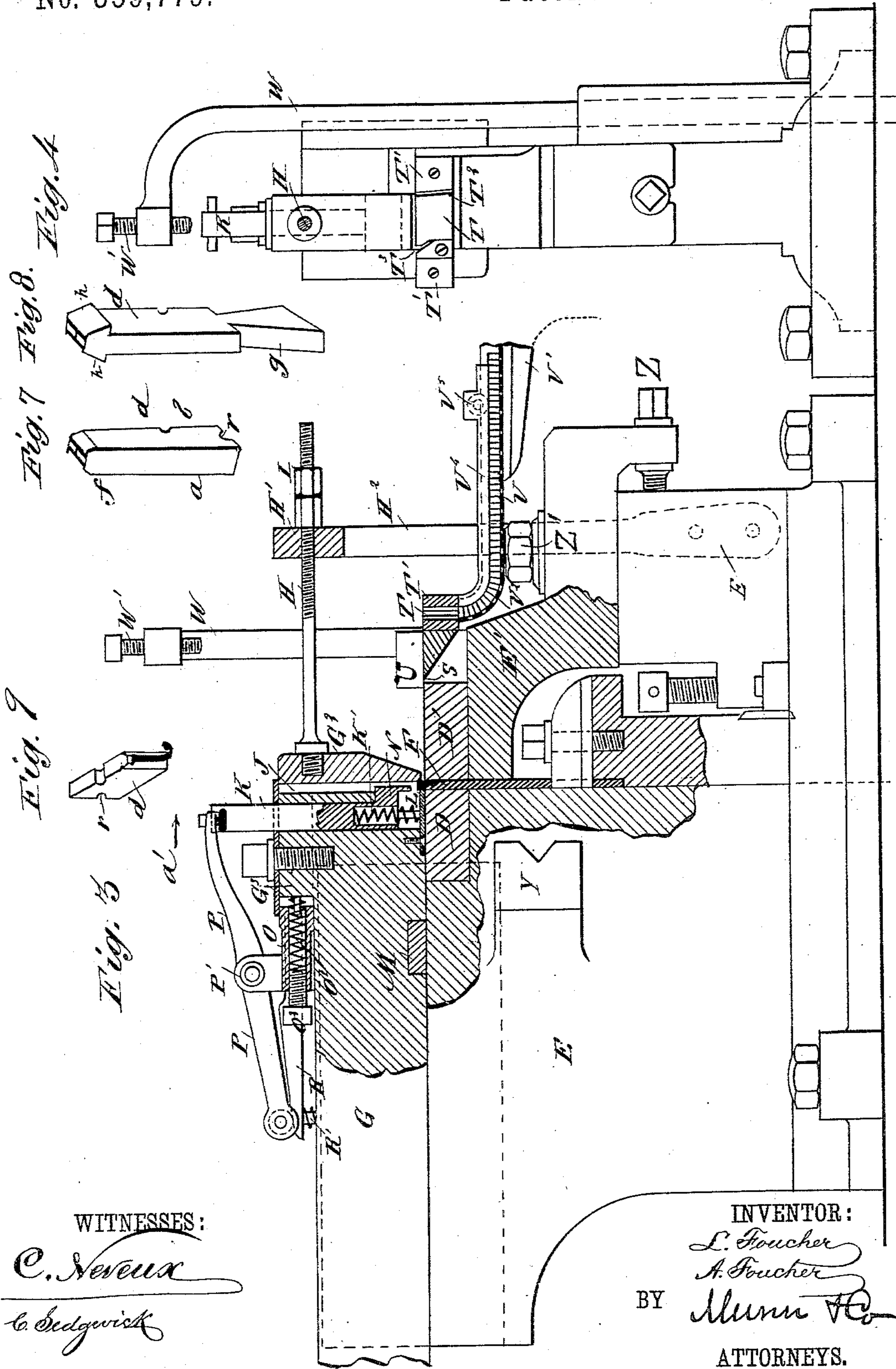
(No Model.)

5 Sheets—Sheet 3.

L. & A. FOUCHER.
MACHINE FOR CASTING AND FINISHING TYPE.

No. 359,779.

Patented Mar. 22, 1887.



WITNESSES:

C. Neveu
C. Sedgwick

INVENTOR:

L. Foucher
A. Foucher

BY

Munn & Co.

ATTORNEYS.

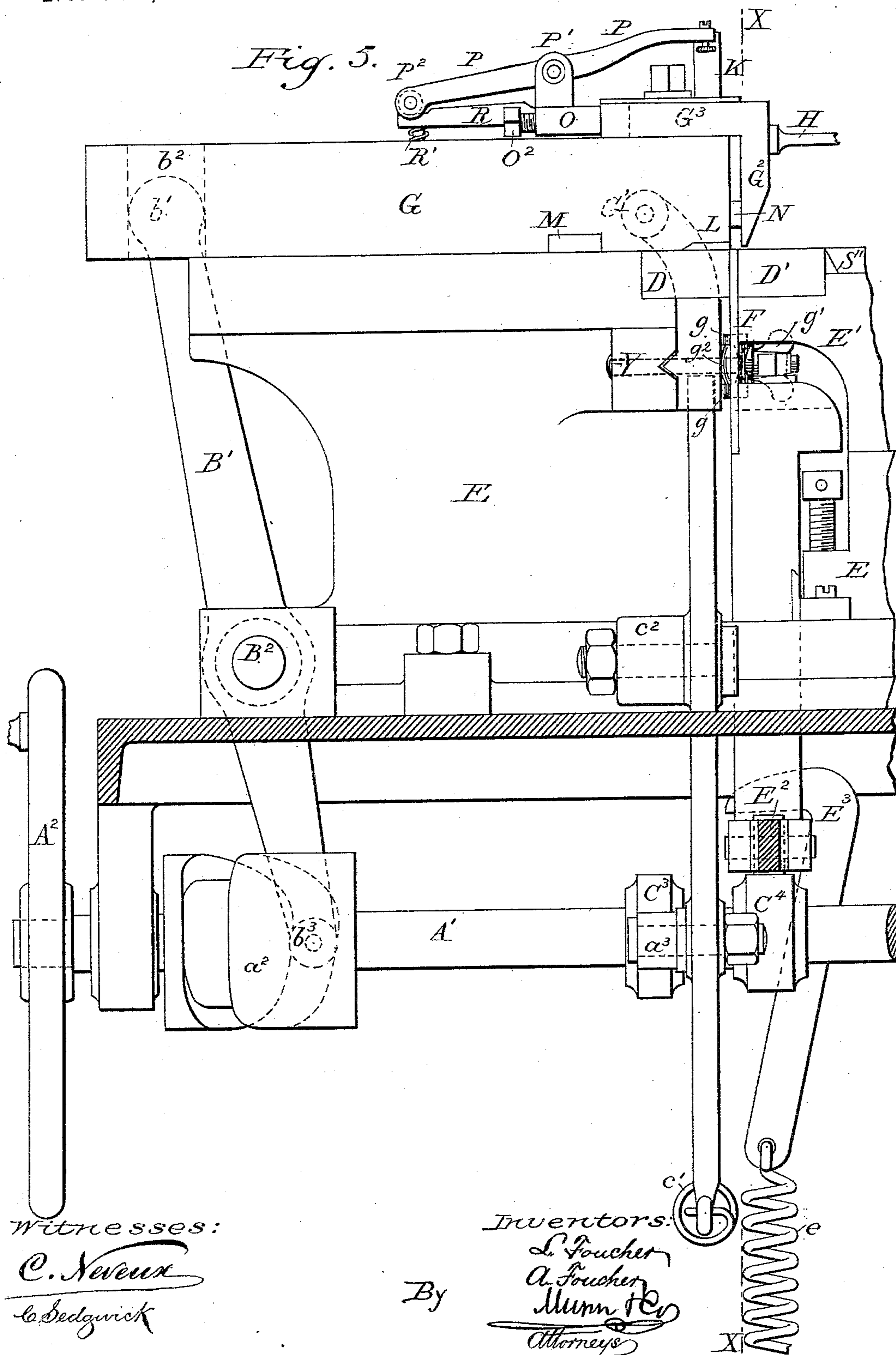
(No Model.)

5 Sheets—Sheet 4.

L. & A. FOUCHER.
MACHINE FOR CASTING AND FINISHING TYPE.

No. 359,779.

Patented Mar. 22, 1887.



(No Model.)

5 Sheets—Sheet 5.

L. & A. FOUCHER.
MACHINE FOR CASTING AND FINISHING TYPE.

No. 359,779.

Patented Mar. 22, 1887.

Fig. 6

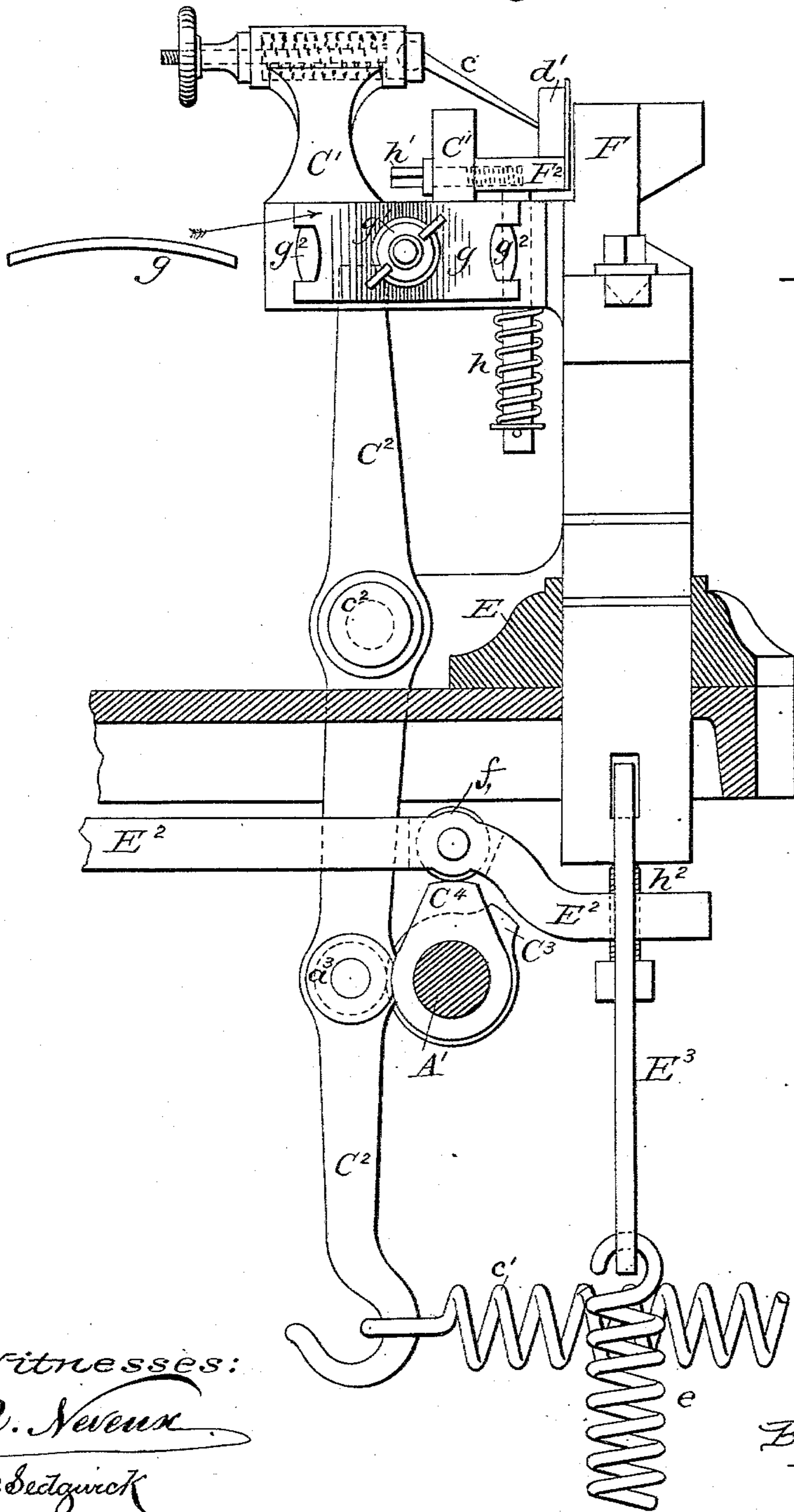
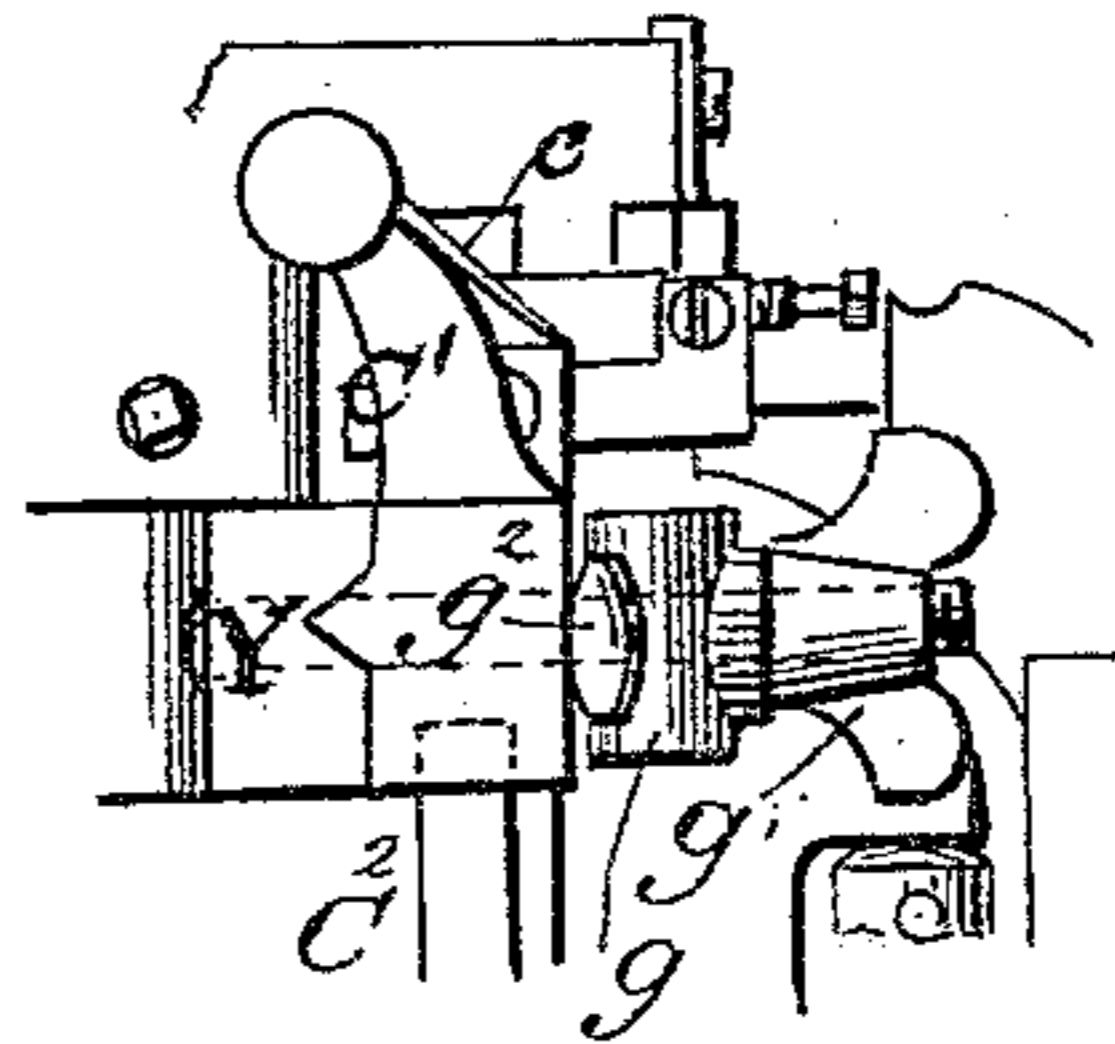


Fig. 10.



Witnesses:

C. Neveu
C. Sedgwick

Inventors:

L. Foucher
A. Foucher
Munn & Co.
Attorneys

By

UNITED STATES PATENT OFFICE.

LÉON FOUCHER AND AUGUSTE FOUCHER, OF PARIS, FRANCE.

MACHINE FOR CASTING AND FINISHING TYPE.

SPECIFICATION forming part of Letters Patent No. 359,779, dated March 22, 1887.

Application filed February 19, 1885. Serial No. 156,376. (No model.) Patented in France March 12, 1879, No. 129,545; in Belgium August 23, 1879, and December 29, 1883, No. 49,113 and No. 63,710, and in Germany January 1, 1881, and June 25, 1884, No. 14,537 and No. 30,455.

To all whom it may concern:

Be it known that we, LÉON FOUCHER and AUGUSTE FOUCHER, of Paris, France, have invented a new and Improved Machine for
5 Casting and Finishing Type, of which the following is a full, clear, and exact description, and upon which Letters Patent were issued in France March 12, 1879, No. 129,545; Belgium, August 23, 1879, and December 29, 1883, No.
10 49,113 and No. 63,710, and German Empire January 1, 1881, and June 25, 1884, No. 14,537 and No. 30,455.

The object of our invention is to provide a new and improved machine for casting type
15 and finishing them ready for use, which machine is simple in construction and operation.

The invention consists in the arrangement and combination of parts and details, as will be described and set forth hereinafter.

20 Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a plan view of my improved
25 machine for casting and finishing type. Fig. 2 is a longitudinal view of one side. Fig. 3 is a longitudinal view of the other side, parts being broken out and others shown in section. Fig. 4 is an end view of the same. Fig. 5 is
30 a view, partly in side elevation and section, with parts broken away, of a portion of our machine. Fig. 6 is a sectional elevation on the line $x x$ of Fig. 5. Figs. 7, 8, and 9 are perspective views of the types. Fig. 10 is an
35 end view in part of our machine, disclosing more fully the relation of the matrix-bearer and its holding-spring with the support or rail, in contact with which the former is held by said spring.

40 The pump A works in the fount B or tank containing the molten metal, which is ejected through a spout, C, into the mold-aperture D^2 of the mold formed of the piece D, of cast iron or steel, on a fixed block, E, and the cast
45 iron or steel piece D' on a block, E' , which, by means of a screw, Z, or analogous devices, can be adjusted a greater or less distance from the piece E, according to the desired width, a , of the type and retained by the screw Z' , the
50 height b remaining permanent.

Between the pieces D and D' of the mold a vertical-sliding plate, F, is arranged, the top edge of which forms the bottom of the cavity or aperture D^2 , into which the type metal is ejected.

55 The top surfaces of the block E and the mold-pieces D and D' are flush and in the same plane. A carriage, G, is arranged to slide on the block E and the mold-pieces D D' , and is operated by a cam or other device. 60

From a jaw, G^2 , on one end of the carriage a rod, H, projects, and is passed through an eye, H' , in the upper end of an upwardly-projecting arm, H^2 , secured on the frame of the
65 machine.

The end of the rod H is screw-threaded, and on it nuts I are screwed, which strike against the arm H^2 and pull the jaw G^2 from the carriage G.

70 A vertical transverse slot, J, is formed in the carriage G behind the jaw G^2 , and extends from top to bottom, and directly behind the said slot a plunger, K, is arranged to move vertically in the carriage and is pressed upward by a spring, K' , interposed between the
75 bottom edge of the plunger and a knife or blade, L, secured horizontally on the bottom of the carriage G at the front end, the free edge of the said blade being a short distance from the bottom edge of the jaw G^2 . A hook, 80
prong, or finger, N, projects from the front of the plunger K and downward, its lower edge being directly over the space between the blade L and the jaw G^2 .

85 The upper end of the jaw G^2 is provided with top and side pieces extending over the top projections, G^3 , of the carriage G, and to the rear ends of the said pieces a neck or tube, O, is secured, containing a spiral spring, O' , held between the rear end of the projection
90 G^3 and an adjusting-screw, O^2 , in the end of the neck or tube O, which spring presses the jaw G^2 toward the end of the carriage G.

95 The upper end of the plunger K is connected with one end of a lever, P, pivoted on an upright projection, P' , on the carriage, the other end of the lever being provided with a roller, F^2 , running on a cam-track, R, resting on springs R' , and provided with a screw, R^2 , for adjusting it higher or lower. 100

The blade L has a short lug, L', at one rear corner, which lug is the only cutting part on the blade. At the front end of the mold-piece D' two diagonal blades or cutters, S and S', are arranged at an angle to each other, and adjacent to the said blades a transverse slot, T, adapted to receive a type, is formed in a piece, T'. In the said slot an end knife or blade, T², and two side knives or blades, T³, are held vertically. A block, U, having its ends semi-circularly recessed, as shown in Fig. 1, is secured on the piece E', near the cutters S S'.

On a standard, V', a track piece or guide, V, is fixed, which has a quadrant curve, V², at one end, the end of the said quadrant fitting against the bottom of the piece T'. The guide or track-piece V can easily be removed, and is provided with a top plate, V⁴, which can be adjusted according to the thickness of the type by means of the screw V⁵. A vertically-movable pressing-arm, W, has a screw, W', in its curved top end, and is to be moved up and down by a cam or other device.

A piece of steel, M, is held in the carriage, to close the mold during the time the letter is being cast.

A' is the sliding plate, carriage, and matrix-carrier-operating shaft, suitably supported in position, as partly shown in Fig. 5, which shaft is operated by the hand-wheel A².

B' is a lever, which is pivoted at B², as clearly shown in Fig. 5, the upper end of which works in a hole, b², of the carriage G, the latter being so actuated by said lever. The lever B' is itself operated by the grooved cam a² on the shaft A', a roll, b³, being applied at the lower end of this lever B'. This mechanical device, or any other similar one, produces the to-and-fro motion of the carriage G and its stops at each end, of course.

C' is the matrix-bearer, made of a block carrying at its front end a table, F², the height of which is settled by a screw, h', and a spring-rod, h. A needle, c, pushed by a spring, presses the matrix d' against two vertical fingers adapted to the table F². The matrix d' is then in a fixed position on the block C', and accomplishes a to-and-fro motion with the said block. The matrix-bearer C' is guided in its movement by its sliding on the projecting arm Y and the semi-elliptic spring g, held in position by the nut g' upon a screw passing through said spring and entering the arm Y, said spring having rolls g² bearing against the said matrix-bearer or carrier C'.

C² is the matrix-carrier-operating lever, pivoted at c², as shown, while its upper end enters a socket in the under side of the said carrier. Said lever is provided with a frictional roll, a³, which bears, by the action of a spring, c', upon a cam, C³, of the shaft A', by the distention of which spring the automatic return movement of the said carrier is also effected after the escape of the major axis of the cam C³ from the roll a³ of said lever.

E² is a lever for elevating the sliding plate F. Said lever has a roll, f, resting upon a

cam, C⁴, of the shaft A', and is depressed under the action of a spring, e, and a hook, E³.

The operation is as follows: The plate F is raised to such an extent that its top edge is distant from the top edges of the pieces E E' a distance equal to the desired thickness a of the type, and the piece M of the carriage G closes the top of the mold-aperture D², into which molten metal is ejected through the spout C, whereby the type d is formed, having a beveled head, f, and a bottom lug, g. The carriage G then slides in the inverse direction of the arrow a', whereby the piece M is moved from over the aperture D². The cutting-lug L' of the blade L cuts off the part h of the head f of the type on the top side. When the carriage G is in the position shown in Fig. 3, the nut I has struck the arm H² and pulled the jaw G² from the end of the carriage G, and the plate F pushes the type up between the blade L and the jaw G², and is grasped firmly between the jaw G² and the edge of the blade L and is carried by the carriage in the direction of the arrow a'. The roller R², sliding up the cam-track R, presses the finger N on the top of the type and presses the type on the bed or piece D', over which the type slides. The lug g is cut or broken off by the block U, and the part h of the head on the bottom of the type is cut off by the blades S S', and at the same time the fin is removed. When the type is over the slot T, the arm W descends, its screw strikes the top of the plunger K and forces the plunger downward, causing the finger N to force the type through the said slot T, whereby knife T² cuts the end groove, r, in the type and the blades T³ trim the sides of the type and remove the remaining fin. The types are forced down the quadrant part V² into the track-piece or guide V, and as they are given a quarter-turn are thus placed edgewise. The types are gradually forced forward into a suitable receptacle at the end of part V. When the types are shaped as shown in Fig. 7, either the knife S' or the knife L are changed, so as not to cut off the projecting end.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

1. In a type casting and finishing machine, the combination, with the carriage, of the knife to cut or trim the top side of the type and the cutters or knives to cut the bottom side of the type, said carriage having a jaw which, together with the top cutting-knife, carries the type to the bottom cutting-knife, substantially as herein shown and described.

2. In a type casting and finishing machine, the combination, with the carriage having the jaw which holds the type, of the plunger pressed downwardly by a lever acted upon upwardly at its one end by a cam-track, substantially as and for the purpose set forth.

3. In a type casting and finishing machine, the combination, with the carriage having the jaw which holds the type, of the spring-pressed plunger having a finger, the lever pressing at

one end upon said plunger, the cam-track acting upward upon the other end of said lever, and the vertically-moving arm having a pendant to act upon the plunger at the end of the travel of the carriage in one direction, substantially as and for the purpose set forth.

4. In a type casting and finishing machine, the combination, with the carriage G, of the jaw G² on one end of the said carriage for the purpose of holding the type, substantially as herein shown and described.

5. In a type casting and finishing machine, the combination, with the carriage G, of the jaw G², and springs for pressing the jaw toward the end of the carriage, substantially as herein shown and described.

6. In a type casting and finishing machine, the combination, with the carriage G, of the plunger K, the piece E, the piece T', having a slot, T, and of the vertically-moving arm W, together with the quadrant track-piece V, substantially as herein shown and described.

7. In a type casting and finishing machine, the combination, with the devices for casting and finishing the type, of the removable track-piece V, having a quadrant end, V², the piece T', having the slot T, standard V', and the screw V³, substantially as herein shown and described.

8. In a type casting and finishing machine, the combination, with the carriage G, of the pieces D D', the knives S S', the plunger K, the lever P, the cam-track R, the jaw G², the block U, and the cutter L, substantially as herein shown and described.

The foregoing specification of our improved machinery for casting and finishing types signed by us this 8th day of January, A. D. 1885.

LÉON FOUCHER.
AUGUSTE FOUCHER.

Witnesses:

CHARLES TISSERAUD,
JULES MATHIEU.