

No. 119,637.

2 Sheets--Sheet 1.
Patented Oct. 3, 1871.

FIG. 1.

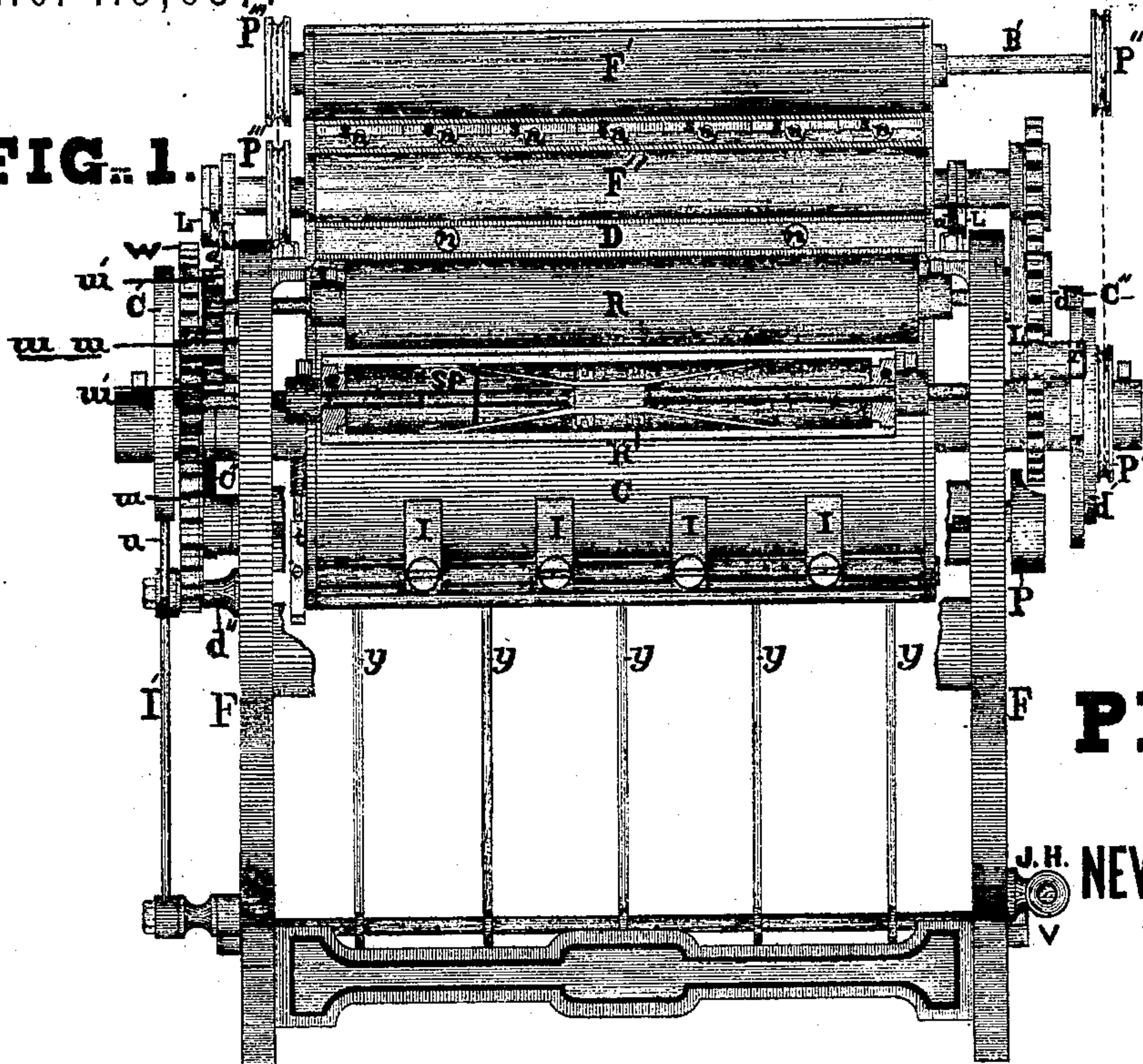


FIG. 5.

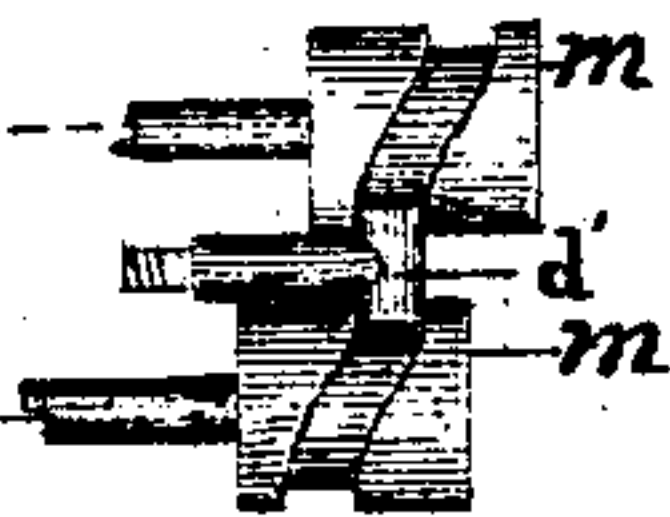


fig. 6.



PLATE B.

OF

NEVINS' BRONZING PRESS

Jan. 1st 1870.

FIG. 2.

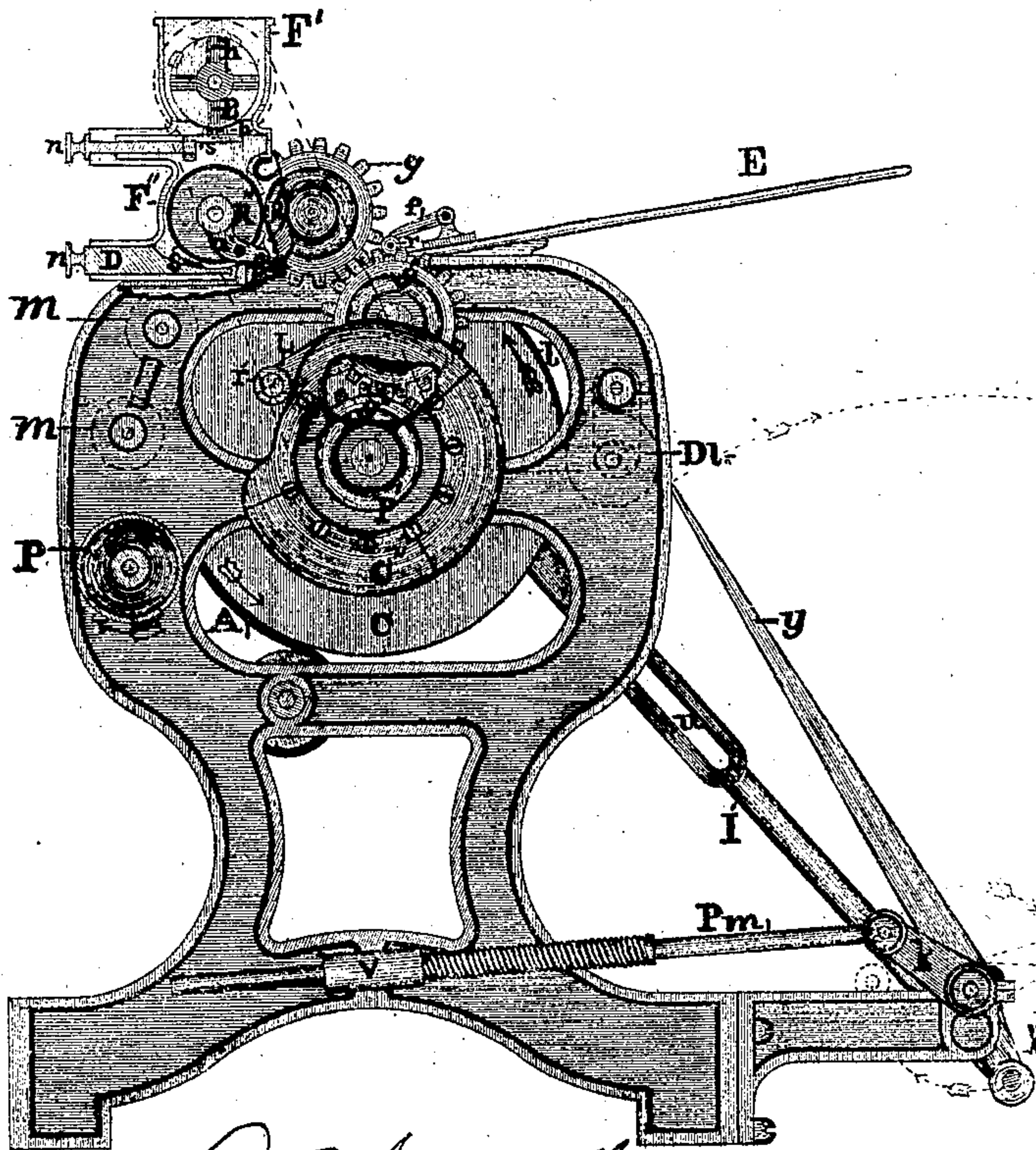
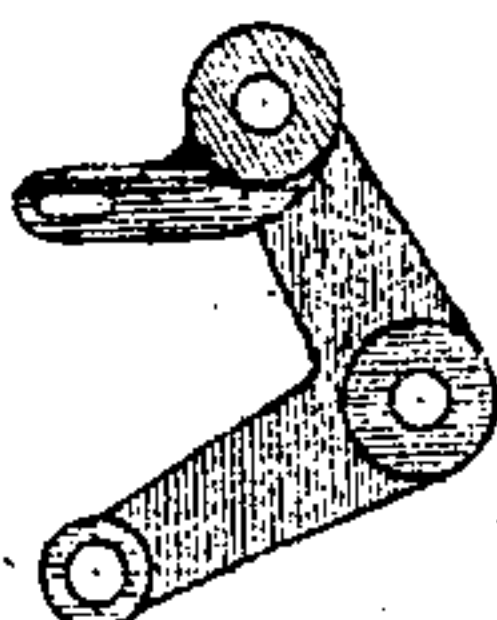


FIG. 4.



Witnessed

Edw. A. Woolley
James Gallou

John H. Nevins
Inventor

No. 119,637.

2 Sheets--Sheet 2.

Patented Oct. 3, 1871.

PRINTER'S BRONZING PRESS.

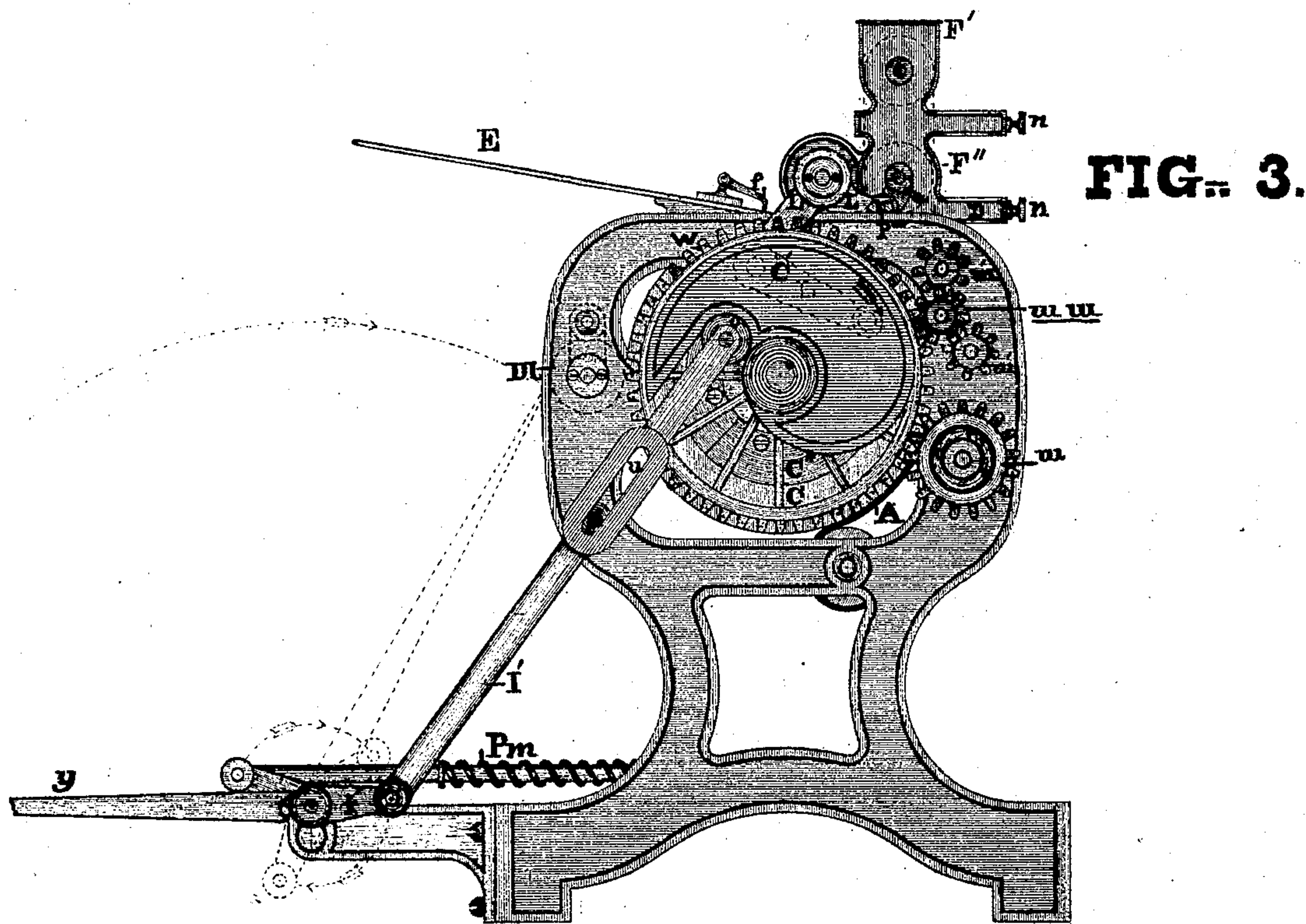
BY

JOHN. H. NEVINS.

Brooklyn, E.D. N.Y. Jan. 1st 1870.

Drawn by H.J. Ferguson, N.Y.

PLATE A.



Witnesses
Edu^d A. Woolley
James Fallon

John H. Nevins, Inventor

UNITED STATES PATENT OFFICE.

JOHN H. NEVINS, OF WILLIAMSBURG, NEW YORK.

IMPROVEMENT IN BRONZING-MACHINES.

Specification forming part of Letters Patent No. 119,637, dated October 3, 1871; antedated September 18, 1871.

To all whom it may concern:

Be it known that I, JOHN H. NEVINS, of Williamsburg, in the county of Kings and State of New York, have invented certain Improvements in Printers' Bronzing-Presses, of which the following is a specification:

Bronzing-presses are used for applying bronze to lettering, figures, borders, &c., which have previously passed through an ordinary printing-press and been prepared therefor by an impression of suitable sizing as a basis of adhesion for the bronze.

My invention relates to economy in the use of material, cleanliness, and speed in performing the work, and perfection in the result.

The improvements constituting my invention lie chiefly in and about the two fountains F' and F'' and the applying-roller R'. They relate to the more perfect sifting, spreading, and distributing of the bronze, and in smaller quantity before applying the same; and to the opening and closing of the fountain F'' without permitting the bronze to be scattered thereby. They also comprise improved rubbing and polishing-rollers.

My machine may be placed adjoining the printing-press so as to permit the immediate passage of the size-printed sheet therefrom to the bronzing-press.

Figure 1 is a back perspective view of the machine. Fig. 2 is a right-hand perspective view. Fig. 3 is a left-hand perspective view. Fig. 4 is a side view of a detail part. Fig. 5 is a side view of a pair of slotted cams belonging to the rollers R R. Fig. 6 is a sectional view of said rollers R R.

The same letters mark the same parts in each figure.

E is the feed-board in front. C is the cylinder; F F, the supporting-frame; R R, the polishing and rubbing-rollers, one being shown in longitudinal section and exhibiting their interior construction. The pulley P' on the cylinder-shaft is a pulley intended to transmit power and motion to the pulley P'' on the brush-shaft B'. C'' is a segmental cam on the cylinder-shaft; r, a friction-roller in contact with the same, and secured in the lower branches of the lifters L L. The segments of the cams C'', one on each end, are secured to a shoulder piece, d', by screws.

The office of these cams C'' C'' is to co-ordinate, by the aid of its adjuncts, the application of the bronze with the length of the sheet being printed. The accommodation to sheets of different lengths is made by displacing and replacing the segments to suit. R' is the applying-roller, and R'' the receiving and spreading-roller. R' has its bearings in the upper branches of the lifters L L, which engage the studs on which they turn at their elbows. (See Fig. 4.) Consequently, when the rollers r r' are on the back of the cams C'' C'', R' and R'' become separated, and when they fall into the recesses shown R' falls back into contact with R'', in which position it receives bronze from it (R'') and applies it upon the co-ordinately-passing sheet. When R' and R'' are thus separated by the action of the roller on the back of the cams C'' C'' no bronze is received or applied, owing to the relation and action of parts to be described hereafter. R' having a gear-wheel, g, on its shaft, meshing with gear-wheel g' secured on the stud of the lifter L, Fig. 2, and that meshing with the gear-wheel g'' secured on the cylinder-shaft, which last is the driver of the train of three (3) gear-wheels, it travels in an arc corresponding to the pitch-line of g' and is always in gear with it, notwithstanding the movements of L L. S' is a slide or closer, conforming to the periphery of R'', situated at the right bottom of the lower fountain. (See segmental white space S'.) Its section moves co-ordinately with and by the lifter L and roller R'. It is a movable longitudinal segment of the fountain side and bottom, is suspended at pin p by arm a, which hangs free on the shaft of R'', and is connected by pin P''' with the slotted branch of L. (See Fig. 3.) Therefore, when R' is lifted from R'' by L the opening in the lower fountain, which would otherwise be exposed, is immediately closed and the escape of bronze is prevented, the parts being organized co-ordinately. The train of gear-wheels g g' g'' is absent at the left end of the machine; otherwise the above description applies to both ends equally. r is a small friction-roller for lifting the finger f, thus releasing the sheet when "taken" by the grippers I I I, and it is actuated by the ledge l on the cylinder C. (See Fig. 2.) The receiving and spreading-roller R'' receives the bronze which is driven or brushed

through the perforated bottom *b* of the bronze-chamber or fountain B by the brush *h*. The applying-roller *R''* takes the bronze and lays it on the sheet resting on the cylinder C, as required. These rollers are covered with soft plush or fur to aid this work. The brush *h* is made up of longitudinal lines of short bristles arranged in a cylindrical shaft of wood, and is driven by the pulley *P''*. The perforations *b* of the bronze-fountain bottom are wider below than above, to prevent clogging. The slides *S S S* immediately beneath the perforated bottom further regulate the supply of bronze being handled by the knobs *n*, so as to cover or uncover the same. The drawer D receives the surplus bronze falling beneath the roller *R''*, and may be occasionally emptied into the upper fountain *F'*. The rollers *R R*, called polishing or rubbing-rollers, have both rotary and end motion to evenly place and fix the bronze and remove surplus bronze, and thereafter polish the bronze print. The rotary motion is opposite to that of the cylinder C. The end motion is given by the slotted cams *M M*, (see Fig. 5,) on the right outer ends of the shafts of *R R*, rotating against the fixed stud *d'* firmly screwed into the outside frame. (See red dotted lines *M M*, Fig. 2.) The rollers *R R* are constructed of four longitudinal pieces or segments fitted at their ends into shoulder-bosses *e e*, and are tightly covered with a hose of soft plush or fur acting as a band. Interiorly they have springs secured to the square faces of the shafts, and their elastic ends supporting the segments lightly, so that they gently yield to the inequalities passing, and do no injury to the fixed bronze, (see Fig. 6,) where *sg* are segments, *sp* are springs, *S'''* is the shaft, and *pl* the plush or fur. *P* is the driving-pulley of the whole machine. *Pm* is the spring-pitman to operate *y y y y* when the sheet is received. It slides freely in a swivel-sleeve, *v*, and is connected with the crank *k* on the fly-shaft for operating the same. *A* is a wiping-apron, Fig. 2, and its office is to finally wipe the sheet before its delivery to the fly, thus removing all surplus bronze and causing it to drop into the drawer below. *C'* is the fly-cam, and turns in the direction of the arrow, opposing the spring-pitman *Pm* and gradually forcing down the fly-rod *I'*, which is provided with a friction-roller, *o*, at its upper end. By this action the fly *y y y*, &c., is raised until the roller *o* passes the extreme point of the cam *C'*, when release occurs, reverse action sets in, and the roller *o* suddenly drops to the bottom of the recess in the cam *C'*. The lower end of *I'* is cranked at *k'* on the fly-shaft, and it has a guide-slide, *u*, which moves freely on the face of the stud *d''*, Fig. 1. *W* is a large gear-wheel driven by a small wheel, *w*, attached to the shaft of the pulley *P* at its opposite end. *W* meshes also with a double stud-wheel, *w w*, which in turn meshes with two other pinion-like wheels, *w' w'*. (See Figs. 1 and 3.) *w' w'* belong to the rollers *R R*, and correspond to the slotted cams *M M* at the other end of the machine. The double

stud-wheel *w w* gives them opposite motion to that of the cylinder C. The segmental cam *C''* and lifter *L* are seen in Fig. 3, but the wheels *g g' g''* are absent at this end of the machine. The brush *h* and roller *R''* are connected by the belt of the pulleys *P''' P'''*. *t* is the trip of the griper-rod. (See Fig. 1.) The red dotted lines *D C* outline the delivery-rollers, Figs. 2 and 3, which facilitate delivery to the fly. All the parts inside the frame are covered in use, except the fountain, by a common covering, say of sheet-iron, extending from frame to frame, of a hoop or barrel form, and the oblong spaces in the frames paneled.

My improvements act specifically as follows: The bronze is first brushed through fine holes in the bottom of the top fountains, which spread as they deepen, sifting upon the spreading-roller *R''* more minutely from the beginning than when slits are used. This roller, revolving in its own chamber, is prepared to give up its bronze with great evenness and economy, not to the sheet as in other machines, but to the applying-roller *R'*, which lays it on the sheet, contributing, both in the act of receiving and in the act of delivering, to the still more thorough division and consequent economy and perfection. These points touch the imperfections of other machines. Both fountains and the roller *R'* are so covered in that there is no chance for the escape of the bronze except at the place where the sheet of paper enters the machine and where the slide *S'* opens the fountain *F''*. The first of these may be practically closed by the attendant with the edge of the next sheet, and the second is closed by the roller *R'* and its cover, thus preventing any escape of the expensive and unhealthy material used.

The operation of the polishing-roller has been before described.

I claim as my invention—

1. The combination of the fountains *F'* and *F''*, the brush *h*, and roller *R''* when, the roller *R''* is rotated in the fountain *F''* for the purpose of taking up the bronze powder evenly on its surface, as set forth.
2. The slides *S S S*, in combination with the fountains *F'* and *F''* when inserted between the same, for the purposes set forth.
3. The fountain *F''* and roller *R'* in combination with the applying-roller *R''*, and operating as described.
4. The applying-roller *R'*, moved from the spreading-roller *R''* and the sheet-drum C by the lifters *L L*, operated by the cams *C'' C''* for the purpose of stopping the application of bronze, and dropping to the same by its own weight for the purpose of applying bronze to the passing sheet.
5. The case of the fountain *F''*, constructed with the slide *S'* moving co-ordinately with the roller *R'* to open and close the lower bronze-fountain *F''*.
6. The rubbing- and -polishing rollers *R R*, constructed, as shown, and given both rotary

and end motion, the last by the slotted cams M M.

7. The combination of the sliding segment S' and the arms *a a*, by which it is carried and kept in position.

8. The combination of the lifting-arms L L, the actuating-arms L', and the sliding-segment S'.

9. The cams C'' C'', when operating to throw the applying-roller R' out of function.

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Witnesses:

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EDWD. H. WOOLLEY.