F. A. DE MEY.

MECHANICAL TYPOGRAPHER.

No. 38,815. Patented June 9. 1863.

Fig. 1.

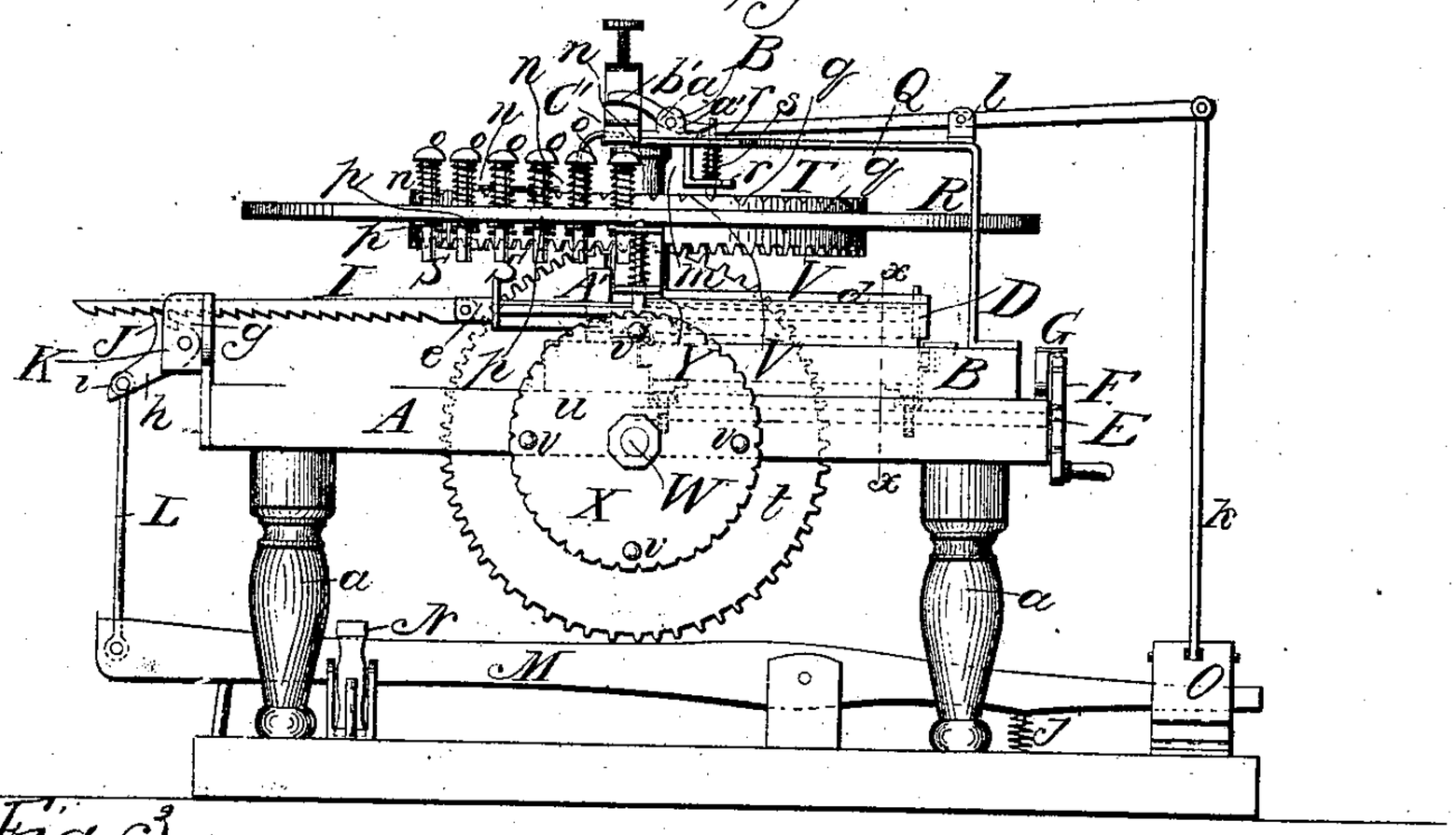
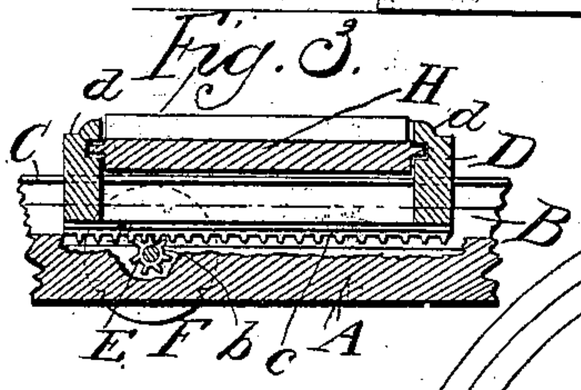
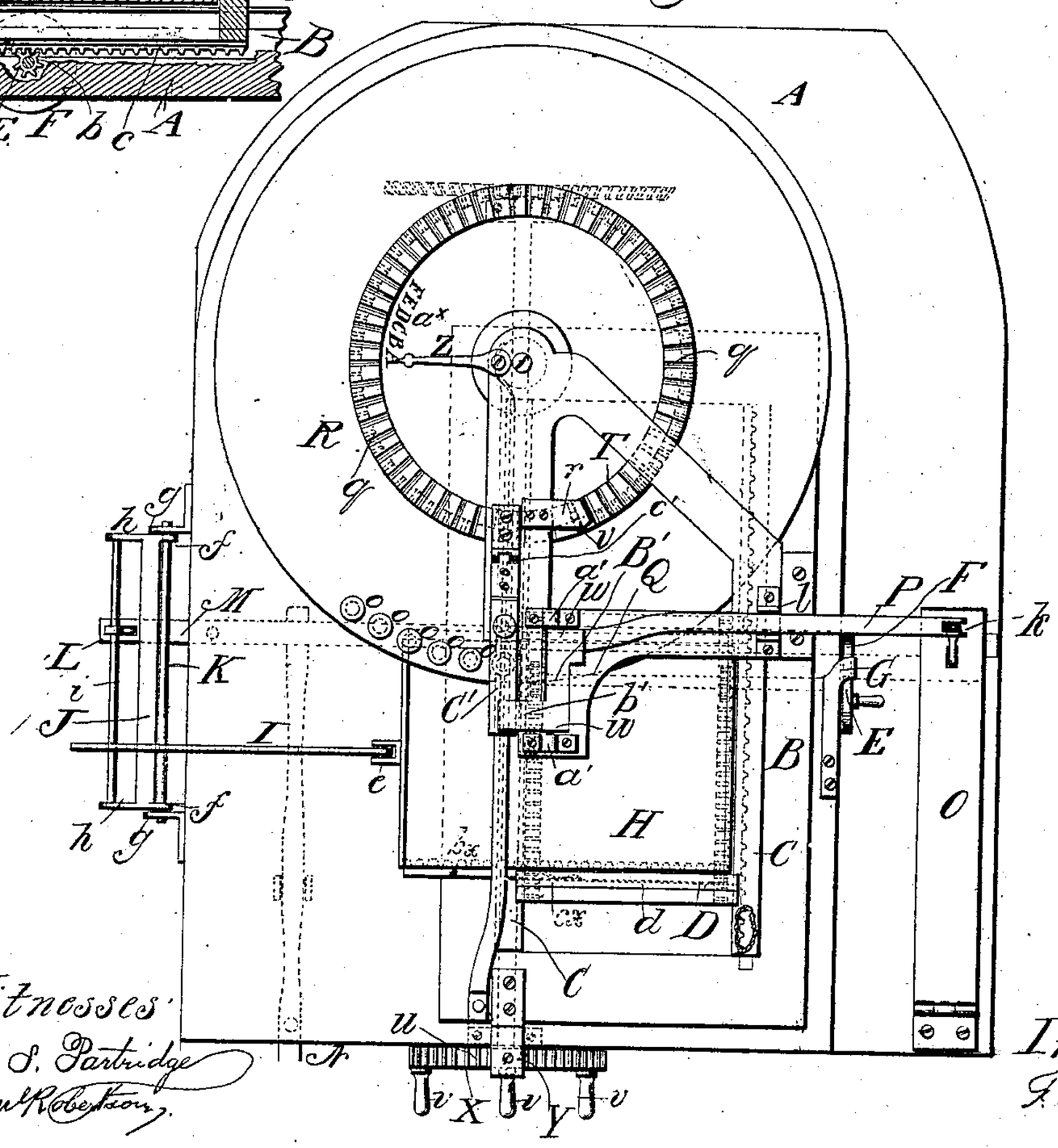


Fig. 2.

Fig. 3.





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IMPROVEMENT IN PRINTING APPARATUS.

Specification forming part of Letters Patent No. **38,815**, dated June 9, 1863.

To all whom it may concern:

Be it known that I, F. A. DE MEY, of the city, county, and State of New York, have invented a new and Improved Mechanical Typographer or Printing Apparatus; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a front view of my invention; Fig. 2, a plan or top view of the same; Fig. 3, a section of a portion of the same, taken in the line *x x*, Fig. 1.

Similar letters of reference indicate corresponding parts in the several figures.

This invention relates to a new and improved apparatus or device for printing direct from the type, so as to avoid the labor of setting up the type, and also the subsequent manipulation of taking the impression therefrom.

The invention is designed for printing letters, circulars, &c., either directly on ordinary paper or on transfer-paper, and is also designed for forming electrotype-molds, the type in the latter case being pressed directly into wax or other suitable plastic substance, on which, after it has received the impressions of the type, a coating of copper is deposited, through the agency of a galvanic current.

The invention consists in the peculiar arrangement of means employed for operating a wheel in which the type are placed, and also for operating the type and feed-table on which the paper to be printed or the plastic substance to receive the impressions of the type is placed, whereby the operator has perfect control over the machine, and the manipulation of the same rendered extremely simple and capable of being performed with the greatest facility.

To enable those skilled in the art to fully understand and construct my invention, I will proceed to describe it.

A represents a horizontal bed-plate, supported by legs *a*, or any suitable framing, and B is a rectangular frame, which is permanently secured on the bed-plate, and has a guide strip or plate, C, attached to each side of it.

D is a rectangular frame, which is fitted within the frame B, and between the guide strips or plates C C. This frame D is considerably shorter than the frame B, so that the former may have a certain play or movement in the latter, and this movement is produced by means of two pinions, *b*, on a shaft, E, the pinions gearing into two racks, *c*, attached to the under surface of frame D, one at each side. The shaft E is fitted in the bed-plate A, and has a wheel, F, on its outer end, having notches in its periphery, in which a pawl, G, catches. The front and back cross-bars, *d d*, of the frame D are grooved at their inner sides to receive the edges of a feed-table, H, the grooves serving as guides for the latter. (See Fig. 3.) This feed-table has an arm, I, attached to its outer end by a joint, *e*, and said arm is toothed at its under surface and rests upon a bar, J, the ends of which are provided with ears or lugs *f f*, the latter being attached to the bed-plate A. The ends of the bar J also have arms *h h* projecting from it—one at each end—said arms being connected by a rod, *i*, which has a rod, L, attached to it, the latter at its lower end being connected to lever M. This lever M, which is underneath the bed-plate A, has a spring, *j*, bearing against its under side, and said spring has a tendency to keep the end of the lever M, where the rod L is connected to it, depressed. The bar J is of V form in its transverse section, so that it may engage with the teeth in the under side of the arm I.

N is a lever which is placed at right angles to the lever M, one end of the former being under the latter at a point near where the rod L is attached to the lever M.

O is a treadle, one end of which rests upon the lever M at the end opposite to that where the rod L is attached. This treadle is connected by a rod, *k*, with a lever, P, the fulcrum *l* of which is on a horizontal plate, Q, which is some distance above the frame B, as shown in Fig. 1.

R is a horizontal wheel, the axis *m* of which has its upper bearing in the plate Q, the lower bearing being in a step on frame B. This wheel R has the type S fitted vertically in it near its periphery, the type being placed at equal distances apart, and each having a spiral spring, *n*, upon it. The lower ends of these springs rest or bear on the upper surface of the wheel R, and their upper ends bear against small buttons or knobs *o* on the upper ends of the type. Each type has a small pin,

p, passing transversely through it below the wheel, and these pins prevent the springs *n* from forcing the type upward and out from the wheel. (See Fig. 1.) On the upper surface of the wheel R, and concentric with it, there is secured an annular plate, T, which is notched radially at equal distances apart, as shown at *q* in Fig. 2.

U is a stop formed of a short vertical bar, which is fitted in bearings *r r*, attached to the plate Q. This stop is allowed to slide or work freely in its bearings *r r*, and it has a spiral spring, *s*, upon it, which spring has a tendency to keep the lower end of the stop in contact with the annular plate T. To the under side of the wheel R, and concentric with it, there is secured a toothed circular rim, V, into which a wheel, *t*, gears, said wheel being on a shaft, W, which is fitted in bearings underneath the bed-plate A. This shaft W has a hand-wheel, X, on its outer end, the periphery of which is notched at equal distances apart, as shown at *u*. On the periphery of the the wheel X a stop, Y, bears, said stop being precisely like the stop *u*, previously described. The wheel X is provided with handles *v*.

Z is an index, which is attached to the plate Q, and projects down quite close to the wheel R, and over letters $a^{\times}$, marked thereon at such points as to designate when a type, S, of a similar letter is directly over a slot in a bar, A′, above the feed-table H. Letters for the same purpose may also be marked on the outer side of the wheel X. The inner end of the lever P is underneath a plate, B′, the ends of which are provided with journals *w*, the latter being fitted in bearings *a′ a′* on the plate Q. The plate B′ has an arm, *b′*, projecting from it, and this arm extends over the end of a lever, C′, the back part of which is connected by a hinge, *c′*, to the plate Q. The lever P has a spring bearing against its under side, said spring having a tendency to keep the front end of lever P elevated above the type S.

The operation is as follows: The paper to be printed upon or the plastic substance to receive the impressions from the type is placed on the feed-table H, and the latter is so adjusted that it will be fitted fully in the frame D, or as far therein as it is allowed to extend. The frame D is also so adjusted that the front end of the feed-table will be under the type S. The operator is seated in front of the machine, and by turning the wheel X rotates the type-wheel R so that the type to be actuated will be brought over the slot in the bar A′. The index Z and letters $a^{\times}$, as before stated, serve as a guide to the operator in turning the wheel R, and when the desired type S is brought over the bar A′, the treadle O is pressed down by the foot of the operator, and the lever P actuates the plate B′, the arm *b′* of which presses down the front end of the lever C′, and the latter forces down the type S below it upon the paper or plastic substance on the feed-table H. The treadle O, when pressed down, actuates the lever M, and the latter, through the medium of the rod L, turning the bar J so that it will catch into a tooth of the arm I. When the operator raises his foot from the treadle O, the spring *j′* of the lever M will throw the latter back to its original position, and the bar J and toothed arm I will move the feed-table H a certain distance along in the frame D, so that the paper or plastic substance on the feed-table will be in proper position to receive the succeeding type. This movement of the feed-table causes the impressions on the paper or in the plastic substance to be spaced a proper distance apart. When the treadle O is allowed to rise, the spring of the lever P forces the latter upward to its original position. The notches *q* in the annular plate T, and also the notches *u* in the periphery of the wheel X, receive, respectively, the stops U and Y, said stops preventing any casual movement of the type-wheel, and also serving to determine the movement of the latter in order to bring the type over the slot in bar A′. When a line has been printed on the paper or plastic substance on the feed-table H, the operator moves the frame D, and consequently the feed-table H, forward, so that a sufficient space will be allowed for a succeeding line. The notches in the wheel F and pawl G serve to determine this movement of the frame D. In case it should be necessary to move the feed-table H independently of the treadle O, it may be done by operating the lever N. This is a very desirable feature of the invention, as it enables the operator to space the distance between the impressions, the distance of one or more movements of the bar J, and types of different sizes may be used on the same machine.

I would remark that the feed-table H may have a rack, $b^{\times}$, at one side of it, and a pawl, $c^{\times}$, may be attached to one of the end pieces of the frame D. This rack and pawl will prevent any casual movement of the feed-table H.

I do not claim, broadly and separately, a wheel provided with type arranged in such a manner that they may be forced down in order to give impressions, for that constitutes an old and well-known device; but,

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

1. The revolving type-wheel R, when operated or turned through the medium of the toothed rim V, wheel *t*, and hand-wheel X, and used in combination with the notched annular plate T and the stop U, and with or without the stop Y and notches *u* in the periphery of the wheel X.

2. The lever M, connected with the bar J, as shown, in combination with the toothed arm I, attached to the feed-table H, and the lever N, arranged in relation with the lever M, to operate as and for the purpose herein set forth.

3. The treadle O, connected with the lever P, as shown, in connection with the plate B′ and lever C′, when said parts are used, in combination with the type-wheel R, for the purpose specified.

4. The combination of the levers M N P, treadle O, bar J, toothed arm I, plate B′, lever C′, and type-wheel R, all arranged for joint operation as and for the purpose herein set forth.

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