

H. HARGER.
MECHANICAL TYPOGRAPHER.

No. 22,423.

Patented Dec. 28, 1858.

Fig. 1.

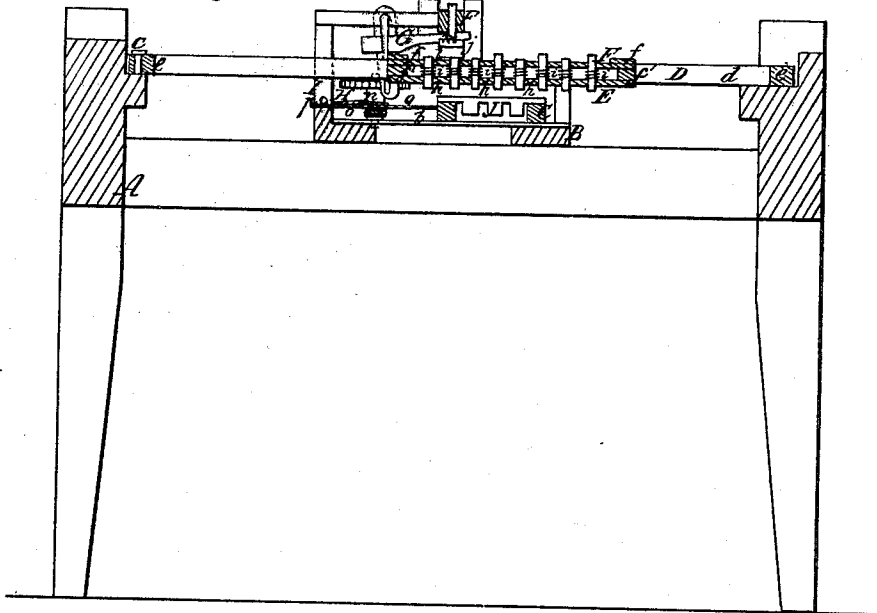
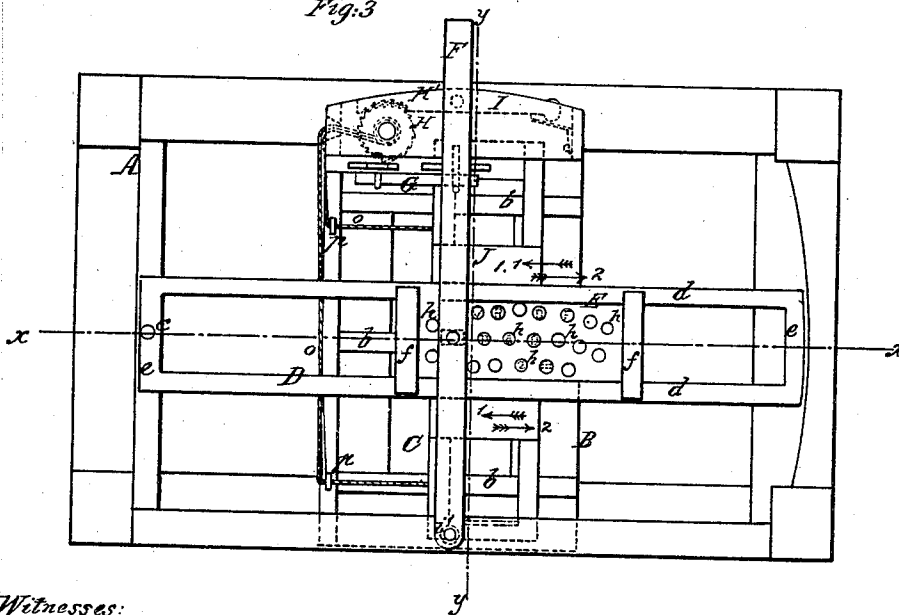


Fig. 3.



Witnesses:

E. C. Harding
Charles Harger.

Inventor.

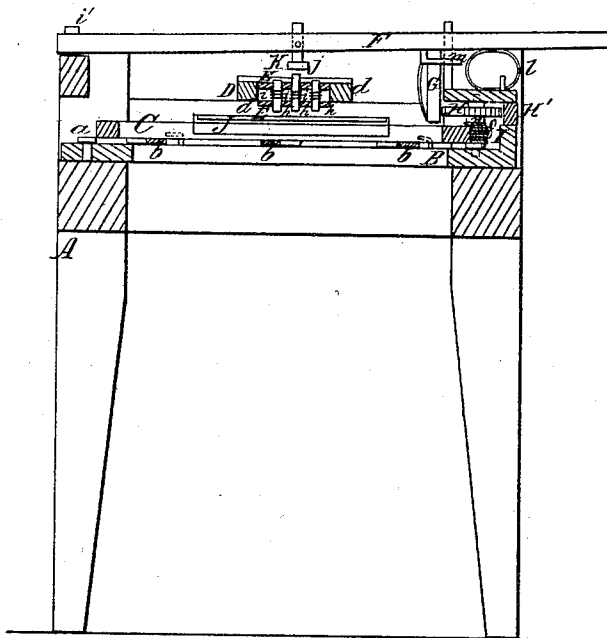
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Fig. 2.



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Inventor:

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UNITED STATES PATENT OFFICE.

HENRY HARGER, OF DELHI, IOWA.

MECHANICAL TYPOGRAPHER.

Specification forming part of Letters Patent No. 22,423, dated December 28, 1853.

To all whom it may concern:

Be it known that I, HENRY HARGER, of Delhi, in the county of Delaware and State of Iowa, have invented a new and Improved Mechanical Typographer; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a vertical longitudinal section of my invention, taken in the line *x x*, Fig. 3. Fig. 2 is a transverse vertical section of same, taken in the line *y y*, Fig. 3. Fig. 3 is a plan or top view of same.

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

This invention consists in an improved arrangement of means for actuating type, feeding thereto the article or substance to receive the impressions, and also for keeping the parts properly adjusted relatively with each other, so that the desired work—to wit, printing direct from the type—may be performed with great facility.

The invention is applicable either for printing on paper or for giving impressions in wax, so as to form molds or matrices for electrotyping and similar purposes.

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

A represents a frame, which may be constructed in any proper way to support the working parts of the device. B is a bed-piece, one end of which is attached by a pivot, *a*, to the upper part of the frame at one side, the bed-piece being placed transversely in the frame and allowed to turn or move from the pivot *a* as a center, the opposite end of the bed-piece resting on the opposite side of the frame. On the bed-piece B two or more parallel ways, *b*, are secured, and a frame, C, is placed on said ways and allowed to move freely thereon back and forth in the directions indicated by the arrows 1 and 2, (see Fig. 3,) said movements being longitudinal with the frame A.

On the frame A, just above the bed-piece B, a rectangular frame, D, is placed, said frame being secured at one end to the frame A by a pivot, *c*, which serves as a center of oscillation for the frame. This frame D is formed merely

of two parallel bars, *d d*, connected by end pieces, *e e*, as shown plainly in Fig. 3.

Within the frame D two plates, E E, are fitted and sustained by traverse cleats or bars *f f*. The two plates E E are placed one over the other, and secured the proper distance apart by end cleats, *f' f'*. The two plates E E form the type-bed, and the types *h* are fitted in the plates in rows, each row being an arc of a circle. Three rows may be employed, one row being capitals, another small letters, and the other marks of punctuation. Each type *h* has a spiral spring, *i*, around it, and these springs have a tendency to keep the type thrown upward to the extent of their movement. The types, however, are of unequal heights or lengths, as shown clearly in Figs. 1 and 2. The object of this will be presently explained.

F is a lever, one end of which is attached by a pivot, *i'*, to the frame A, said pivot admitting of a horizontal and vertical movement of the lever. The lever F has a pin, *j*, passing vertically through it at about its center, said pin having a head, *k*, at its lower end. The end of the lever F, opposite to the end which is attached to the frame by the pivot *i'*, rests on a spring, *l*, and to the under side of the lever F the upper end of a bent lever, G, is attached by a hook, *m*. The lower end of the lever G is a pawl, which catches or gears into a ratchet, H, said ratchet being fitted in a box, I, at the end of the bed-piece B. Around the axis *n* of the ratchet H cords or chains *o* are wound, and these cords or chains pass around rollers *p* on the frame B and are attached to the frame C.

H' is a retaining-pawl, that gears into the ratchet H.

On the frame C a plate, J, is placed, said plate being allowed to slide on the frame C. If the device is to be used as a printing-machine, the sheet of paper to receive the impressions of the types is placed on the plate J and below the type-frame E E. The plate J is so adjusted that the types may be pressed down upon the paper by the pin of the lever F, which is actuated by the operator, the paper being fed along by the cords or chains *o*, which are actuated through the medium of the levers F G and ratchet H as the lever F rises, said cords moving the frame C on the bed-piece B. The type-frame E E is readily adjusted, so that each

individual type may be brought at the desired spot over the paper and underneath the pin *j* of lever *F* in consequence of the oscillating or swinging movement allowed the frame *D* and the bed-piece *B*.

As letters vary considerably in width, it will be seen that the feed movement of the paper varies in accordance therewith. This object is effected by the unequal length of the types *h*, which give a greater or less movement to the lever *F*, and consequently a corresponding lateral adjustment of the plate *J* and the paper thereon.

The types *h* may be inked by any suitable arrangement, the frame *E E* being moved in the frame *D* at one side of the plate *C*, or entirely removed from frame *D*, in order to effect such object.

In case the device is to be used as a means for giving impressions in wax for forming molds or matrices for electrotyping purposes, a sheet or layer of wax is placed on the plate *J* to receive the impressions. The operation is precisely the same whether the device be used

for printing on paper or forming electrotype molds.

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

1. The employment or use of the bed-piece *B*, frames *D* and *C*, and type-frame formed of the plates *E E*, arranged substantially as and for the purpose set forth.

2. The particular means employed, as herein shown and described, for feeding the frame *C* and paper or wax to the type—to wit, the bent lever *G*, connected to the hand-lever *F*, the ratchet *H*, and cords or chains *o*, attached to the frame *C*.

3. Regulating the feed movement of the frame *C* by having the types *h* made of varying heights or lengths, so as to give corresponding lengths of vibration to the lever *F*, substantially as described.

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