

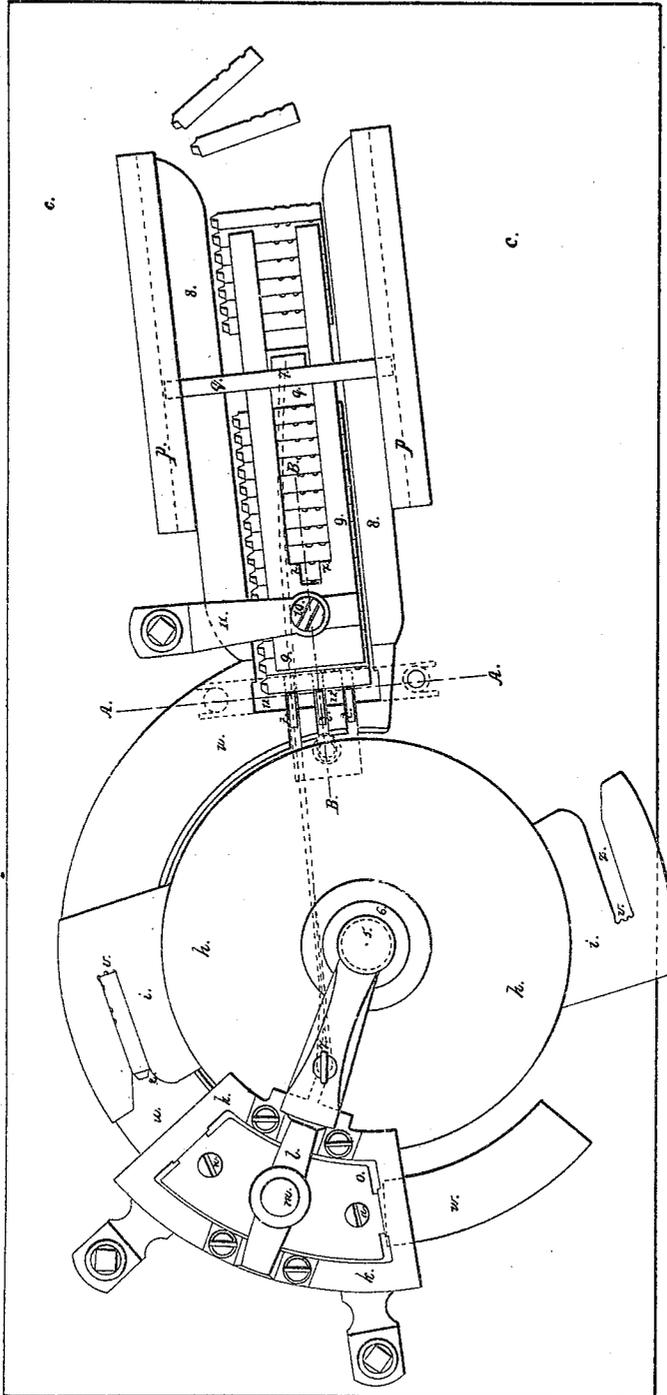
D. Moore. *Sheet 1. 3 Sheets.*

Type Rubbing Mach.

N^o 13935.

Patented Dec. 11, 1855.

Fig. 1.



Witnesses.

Lemuel W. Merrill

Thomas G. Harold

Inventor.

Daniel Moore

D. Moore. Sheet 3. of 5 Sheets.
Type Rubbing Mach.

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Fig. 4.

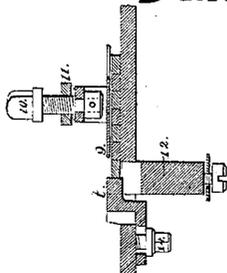
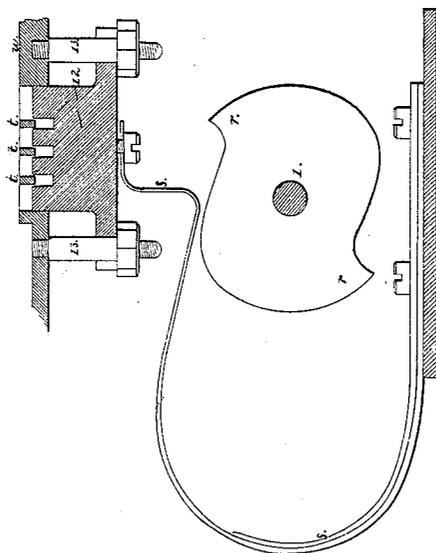


Fig. 3.



Witnesses.

Lemuel W. Perrell

Thomas C. Harold

Inventor.

Daniel Moore

UNITED STATES PATENT OFFICE.

DANIEL MOORE, OF BROOKLYN, NEW YORK, ASSIGNOR TO HIMSELF, GEO. S. CAMERON, AND JAS. H. McWILLIAMS.

IMPROVED MACHINE FOR RUBBING TYPES.

Specification forming part of Letters Patent No. 13,935, dated December 11, 1855.

To all whom it may concern:

Be it known that I, DANIEL MOORE, of Brooklyn, in the county of Kings and State of New York, have invented, made, and applied to use certain new and useful Improvements in Machinery for Rubbing Type; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making part of this specification, wherein—

Figure 1 is a plan of the machine complete. Fig. 2 is a side elevation. Fig. 3 is a section at line A A, and Fig. 4 is a section at line B B.

Similar marks of reference indicate the same parts.

In the various machines which have heretofore been devised, the type, in being carried through the cutters to remove the burrs or projections left on the base of the letter and sides of the type in casting, have been moved sidewise, or nearly so, the cutters acting crosswise of the body of the type. By this mode of rubbing type the hair-lines are very often broken in passing sidewise through the cutters, thereby injuring the beauty of the letter, because the type-metal is brittle and chips and breaks away in consequence of the cut being across the thin end of the hair-lines. To obviate this difficulty it has been sought to supply and pass the type endwise in a continuous line through the cutters; but in this case it has been found that one or more type acting to force the preceding one along endwise would become injured either at the letter end or the base of the type.

The nature of my invention consists in so constructing and arranging the parts that the type are taken one by one into a suitably-constructed plate or slice and carried with the letter end first through between cutters which remove the projection on the base of the letter and the burrs on the type by cutting from the face of the letter down toward the base of the type. Thereby the hair-lines cannot be broken, there being no crosswise cut on the same, and the parts that act on the base or bottom are such as not to damage the type. I also make use of a peculiarly-arranged feeding apparatus, whereby the attendant is enabled

to see that the type are all properly arranged and fed into the machine.

a a are the legs or supports of the machine connecting and carrying the lower bed, *b*, and upper bed, *c*.

d is a wheel to which power is to be applied in any convenient manner. The shaft 1 of the wheel *d* is to be supported in suitable bearings, 2 2, and fitted with a miter-gear, *e*, to a similar gear, *e'*, on the main vertical shaft *f*, which is stepped at the bottom in the set-screw 3, and runs in the journal 4 of the bed *c*, and is kept down into place by the screw 5.

g is a plate or disk permanently attached to the shaft *f*, and *h* is a movable cap or plate secured by the clamp-nut 6. Between these plates *g* and *h*, or attached to either of them, are the plates or slices *i i*, which carry the type while being rubbed, as hereinafter detailed.

k is a metallic box attached to the bed *c*, across which is a bridge, *l*, carrying a set-screw, *m*, by which the space between the cutters *o* and *o'* is adjusted according to the thickness of the type to be rubbed.

n n are adjusting-screws by which the upper cutter is attached to the block in the box *k*, carrying the same, and by which screws *n n* the upper cutter is properly set to take off the burrs and rub the type.

The type are fed into the machine in the following manner:

p p are slides receiving the ends of the follower-block *q*, that is drawn toward the shaft *f* by an india-rubber spring, 7, weight, or other suitable means.

8 8 are slideways, between which the type are pressed toward the disk *g* by said follower-block, and said type are beneath a plate or fork, 9, adjusted vertically, according to the thickness of the type, by a screw or screws, 10, through an arm, 11, and said plate 9 stops a little short of and below the surface of the lifting-block 12, hereinafter described, when the same is elevated to the level of the circular raceway *u*, on which the type are carried to the cutters.

The operator, to feed the machine, assorts the type out on the bed *c*, with the letters all in the correct direction and the type flatwise with their

sides on the bed, and forms a line of said type, following up the block *g* as the same presses the type into the machine to be carried off, as hereinafter set forth, and rubbed, and when the ends of the block *g* pass beyond the slides *p p* the operator lifts said following-block, drawing it back and taking in the line of type already assorted between the slideways *8*, so that they are pressed into the machine. This method of feeding enables the operator to see that the letters of the types, as they lie on the bed *c* in line, are all in one direction. The lifting-block 12 is fitted so as to slide up and down on screwed guide-rods 13, (see the detached Fig. 3,) and is actuated by means of a cam, *r*, on the shaft 1, which operates on the spring *s* to lift and momentarily retain the block 12 in its elevated position, after which the spring *s* draws said block 12 down again; or, to give this lifting-block the requisite vertical motion, the cam *r* might act direct on a projection from the under side of this block 12, and helical springs around the rods 13 be made use of to force said block 12 down.

t is a gage-block having fingers extending out on the level of the raceway *u* in slots therein, (see section, Fig. 4,) and said gage *t* is attached by a set-screw, 14, and the lifting-block 12 is formed with grooves or mortises receiving said gage-fingers. These gage-fingers *t* are to be so adjusted that the space between their ends and the end of the plate 9 shall be slightly more than the width of the type to be rubbed, so that when the lifter 12 is depressed the end type in the line will, by the follower *g*, be pressed up to these gage-fingers *t*, and therefore when the lifter 12 is elevated the one type only is raised to the surface of the raceway *u*, and the parts are so timed that the lifter holds the type in that position until carried off by one of the slices *i i*. When the lifter 12 again descends, another type comes into its place, and that is lifted for the next slice as it comes around. By this means the type cannot be injured. They are reliably lifted and certainly taken off by the slice and rubbed. No time is lost by the operator waiting for a line of type to be rubbed, because she feeds in behind the follower *g*, and then lifts it back to include the line of type, and when the follower *g* reaches the end *x* of the slot in the plate 9, and the ends of the follower clear the slides *p*, no more type can be fed in until the follower is drawn back to include another line; and the position of this end *x* of the slot must be on the line of the edge of one of the types as they stand in line pressed up to the fingers *t t*, or else when the follower *g* stopped against said end *x* one type might be part of the way over the lifter 12 and break the machine; and to accommodate different widths of type a set-screw or similar means may be provided at this point *x*, against which the block *g* will stop. When the burrs and inequalities have been removed from the type by the cutters *o o'*, the type is dropped through the opening *w* into a suitable receptacle, and a brush

might be located at this point to brush off the metallic cuttings that may be on the surface of the slice, and also insure that the type is delivered from said slice. In the construction of these slices there is a peculiarity that, although small in itself, is very essential. If the bottom *v* of the opening *z* in the slice *i* were square across, the corners of the bottom ends of the type would become damaged and prevent the type standing up correctly in line. Therefore I file away the corners of the bottom, as shown in Fig. 1, so that the power to force the type through the cutters is applied near the center of the lower end of the type at the point where the sprue is broken off, or on each side of said point, and where the groove is cut in the usual manner after the types are set up in line, thereby the corners on which the type stand are untouched.

It will be evident that instead of the openings *z* in the slices *i* being at right angles to the radial line of the disks *g* and *h*, the same might be deviated slightly therefrom or made in a **V** form, although I prefer that the type should be rubbed endwise. The great peculiarity, in connection with my construction of slice and mode of rubbing the type, is this: In those slices or plates which carry the type radially or sidewise at right angles to their length, the cutters taking the burrs on the type often carry them away from the slices, and the same become jammed; but so soon as the side of the slice taking the side of the type is formed at a sufficient angle with the radial line, or line of motion of said slices, to cause the bottom of the type to set into the angle formed in the slice to receive said type, the more securely the type will be held into the slice by the cutting operation, because the bottom of the type cannot escape from the angle of the slice and the type must be carried through the cutters; and so soon as this angular position for the type between the radial and tangential line is arrived at, which with a given character of type will not allow the hair-lines to be broken by the cutters—and the operation of said cutters is to force the bottom of the type into the angle of the slice—the objects which I have in view will be accomplished, although I still prefer rubbing the type endwise.

The slices *i* might be actuated by a reciprocating instead of a rotary motion, if desired, so long as said motion was sufficient to carry the type through the cutters and deliver the same.

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

1. Constructing the slice *i* with openings to receive the type at such an angle relatively with the direction in which said slices move that the cutters shall commence to act at the letter end of the type carried by said slices, and that the cutting operation shall tend to force the type into the bottom of said angle, and thereby retain the type in place in said slice in the manner and for the purposes specified.

2. Constructing the slice *i* in such a manner (as at *v*) that the power to force the type in an endwise direction, or nearly so, through the cutters shall be applied at or near the middle of the bottom end of the type, for the purposes and as specified.

3. The follower *q*, slides 8, and holding-plate 9, to supply the machine with a line of type, in the manner and as specified.

4. The lifter 12, combined with the gage-

fingers *t* and end of the plate 9, or other stop, for the purpose of elevating one type at a time, to be taken by the slices, as specified.

In witness whereof I have hereunto set my signature this 3d day of November, 1855.

DANIEL MOORE.

Witnesses:

LEMUEL W. SERRELL,
THOMAS G. HAROLD.