2 Sheets—Sheet 1.

C. G. & O. N. BLOMGREN & S. A. HAWKINSON.

PRINTERS' LEAD-SHAVING MACHINE.

No. 193,315. Patented July 24, 1877.

Fig. 1

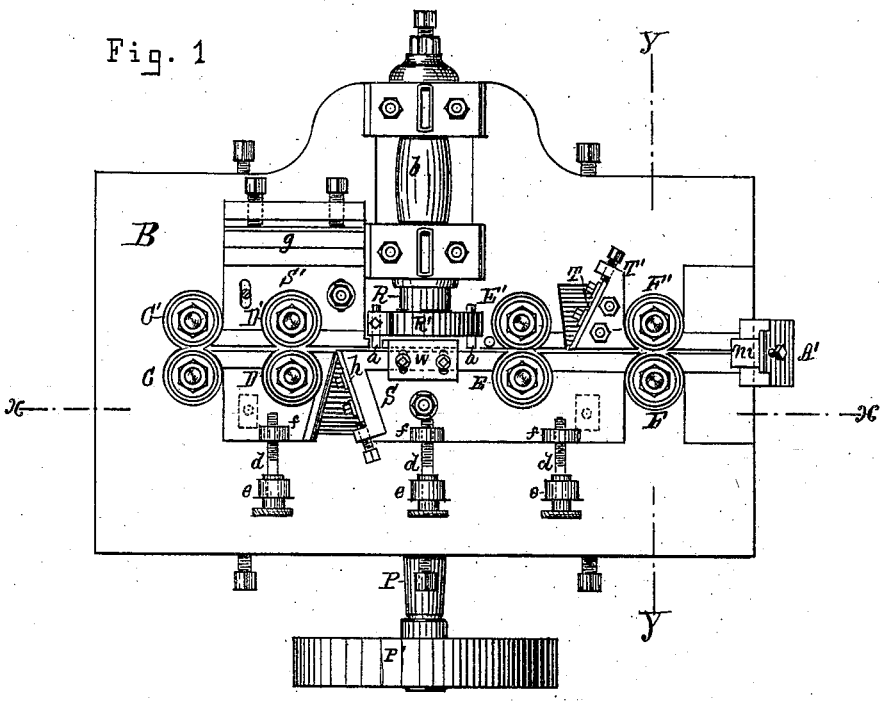

Fig. 2

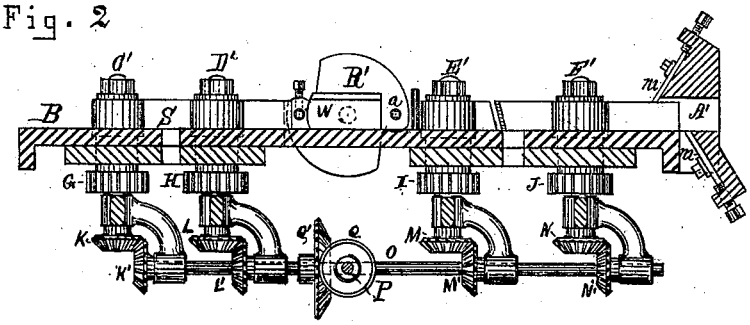

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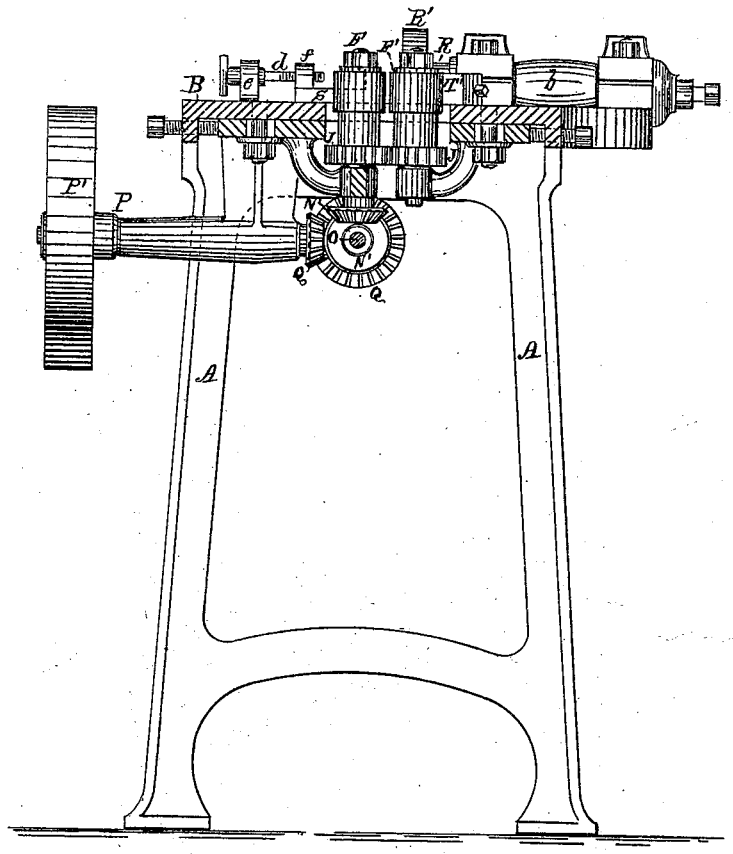
Fig. 3



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UNITED STATES PATENT OFFICE.

CLAUS G. BLOMGREN, OSCAR N. BLOMGREN, AND SWEN A. HAWKINSON, OF CHICAGO, ILLINOIS.

IMPROVEMENT IN PRINTERS' LEAD-SHAVING MACHINES.

Specification forming part of Letters Patent No. **193,315**, dated July 24, 1877; application filed July 17, 1876.

To all whom it may concern:

Be it known that we, CLAUS G. BLOMGREN, OSCAR N. BLOMGREN, and SWEN A. HAWKINSON, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Printers' Lead-Shaving Machines; and we do hereby declare the following to be a full, clear, and exact description thereof, which will enable others skilled in the art to which our invention appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 represents a general plan or top view of a printers' lead-shaving machine embodying our invention. Fig. 2 represents a vertical longitudinal section of the same, taken on the line *x x* in Fig. 1; and Fig. 3 represents a vertical transverse section of the same, showing those parts which are at the left hand of the line *y y* in Fig. 1.

Like letters of reference indicate like parts.

The object of our invention is to provide a machine for shaving the leads and slugs used by printers in leading the type when setting up the form; and our invention consists in so constructing and combining the operating parts of the machine as to admit of being adjusted to dress the leads or slugs to any desired uniform thickness while passing once through the machine.

In the drawing, A represents the frame, which is made of wood or metal, in the form shown, or in any other form that will receive the operating parts of the machine. B is a cap or bed, which is made of metal and permanently attached to the frame in any suitable manner. C C′ and D D′ are the front feed-rollers, and E E′ and F F′ are the rear feed-rollers, which extend upward through the bed B, and are respectively mounted on vertical shafts journaled in suitable boxes attached to the lower surface of the bed. G, H, I, and J are gear-wheels, mounted on the shafts of the feed-rollers C, D, E, and F, respectively, and adjusted to engage with corresponding gear-wheels on the shafts of the feed-rollers C′, D′, E′, and F′, by which means the latter feed-rollers are made to rotate uniformly with and by the rotation of the feed-rollers C, D, E, and F. K, L, M, and N are beveled-gear wheels, which are also mounted on the shafts of the feed-rollers C, D, E, and F, respectively, and adjusted to engage with corresponding beveled-gear wheels K′, L′, M′, and N′, on a horizontal shaft, O, which is journaled in suitable boxes attached to the bed of the machine. P is the main driving-shaft, which is journaled in suitable bearings attached to the bed B, or to the frame of the machine. Q is a beveled-gear pinion, mounted on the inner end of the shaft P, and adjusted to engage with a corresponding beveled-gear wheel, Q′, on shaft O, by which means a rotary motion is imparted to the said shaft O, and consequently to the feed-rollers, by the rotation of the main driving-shaft P. Mounted on the outer end of the said shaft P is a band-wheel, P′, around which is passed a belt, (not shown,) communicating with any suitable motor for imparting motion to the said shaft. R is a transverse shaft, journaled within the bed B, and extending to a point near its center, as shown in Fig. 1.

Mounted upon the inner end of the shaft R is a cutter-head, R′, carrying a series of cutters, *a*, and adjusted to revolve with said shaft. S is a head-block, attached to the upper surface of the bed B, between the feed-rollers C and F, and is adjustable, so as to admit of being moved toward or from the cutter-head, and is firmly secured in a fixed position at any desired point by means of set-screws *d*, arranged within the vertical uprights *e* on the bed, and adjusted to engage with lugs *f* on the outer edge of the head-block. S′ is a guide-block, adjustably attached to the upper surface of the bed, between the feed-roller C′ and cutter-head, and is provided on its outer side with a pressure-spring, *g*, the elasticity of which is such as to hold the guide-block firmly against the lead, so as to press it against the head-block as the lead is moved forward by the feed-rollers.

The head-block S is provided with a cutter, *h*, adjustable, to cause its cutting-edge to project through the face of the block to, and in contact with, the back of the lead.

T is the finishing-cutter, which is adjust-

ably attached to a cutter-head, T′, secured to the bed B, between the feed-rollers E′ and F′, and so arranged as to admit of moving the cutter toward or from the head-block S, as may be desired. W is a clamp-plate, adjustably attached to the head-block S, in a plane with the center of the cutter-head, and is so arranged as to allow the lead being shaved to pass between it and the head-block.

The object of this clamp-plate is to hold the lead against the head-block, so as to prevent the lead from being sprung by the friction of the revolving cutters.

m m are the edging-cutters, which are adjustably attached to a head-block, A′, secured to the end of the bed, and are so arranged as to admit of being raised or lowered, so as to engage the edges of the lead as the lead is moved forward by the feed-rollers, by which means the lead is cut to any desired width.

Mounted upon the shaft R is a pulley, *b*, around which is passed a belt, (not shown,) communicating with any suitable motor, for imparting a rotary movement to the said shaft.

In using our said machine, the leads are first cut in strips or blanks of the desired size, and upon motion being imparted to the several parts of the machine, as described, the said blanks are inserted consecutively between the feed-rollers C C′, and thereby moved forward to and between the rollers D D′, and against the cutter *h*, which cuts a thin shaving from the back of the blank, and so as to leave the blank smooth and true. The blank is then, by a further movement of the feed-rollers, moved forward against the face of the head-block, and in contact with the revolving cutters *a*, by which the face of the blank is cut away, so as to leave the lead of a uniform thickness. The lead, in its forward movement, then passes between the feed-rollers E E′, to and in contact with the finishing-cutter T, by which the ridges formed on the face of the lead by the revolving cutters are cut or shaved off, thereby finishing the face of the lead; and by the further forward movement of the lead it passes between the feed-rollers F and F′, and between the cutters *m m*, by which the edges of the lead are shaved off smooth and true, so as to leave the lead of a uniform width its entire length.

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

1. The combination, with the head-block S and revolving cutter-head R′, of the clamp-plate W, substantially as and for the purpose specified.

2. The combination, with the head-block S, of the spring-pressure guide-block S′, substantially as and for the purpose specified.

3. The combination, with the revolving cutter-head R′, carrying the cutters *a*, of the cutter *h* and finishing-cutter T, substantially as and for the purpose specified.

4. The combination, with the revolving cutters *a* and stationary cutters *h* and T, for shaving the sides of the lead, of the edging-cutters *m m*, substantially as and for the purpose specified.

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