

(No Model.)

2 Sheets—Sheet 1.

W. S. SCUDDER.  
MACHINE FOR CASTING LINOTYPES.

No. 444,090.

Patented Jan. 6, 1891.

Fig. 1.

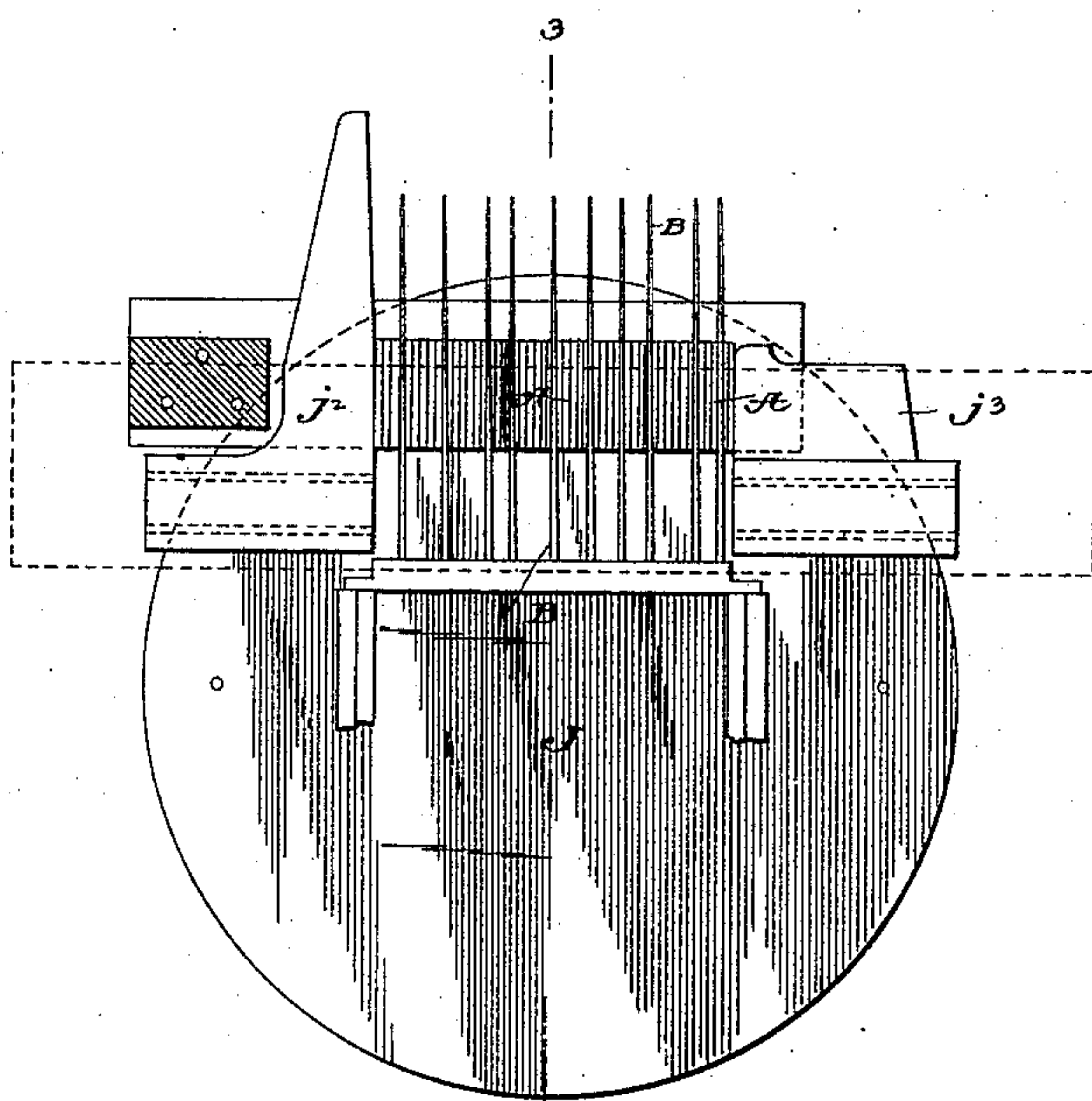
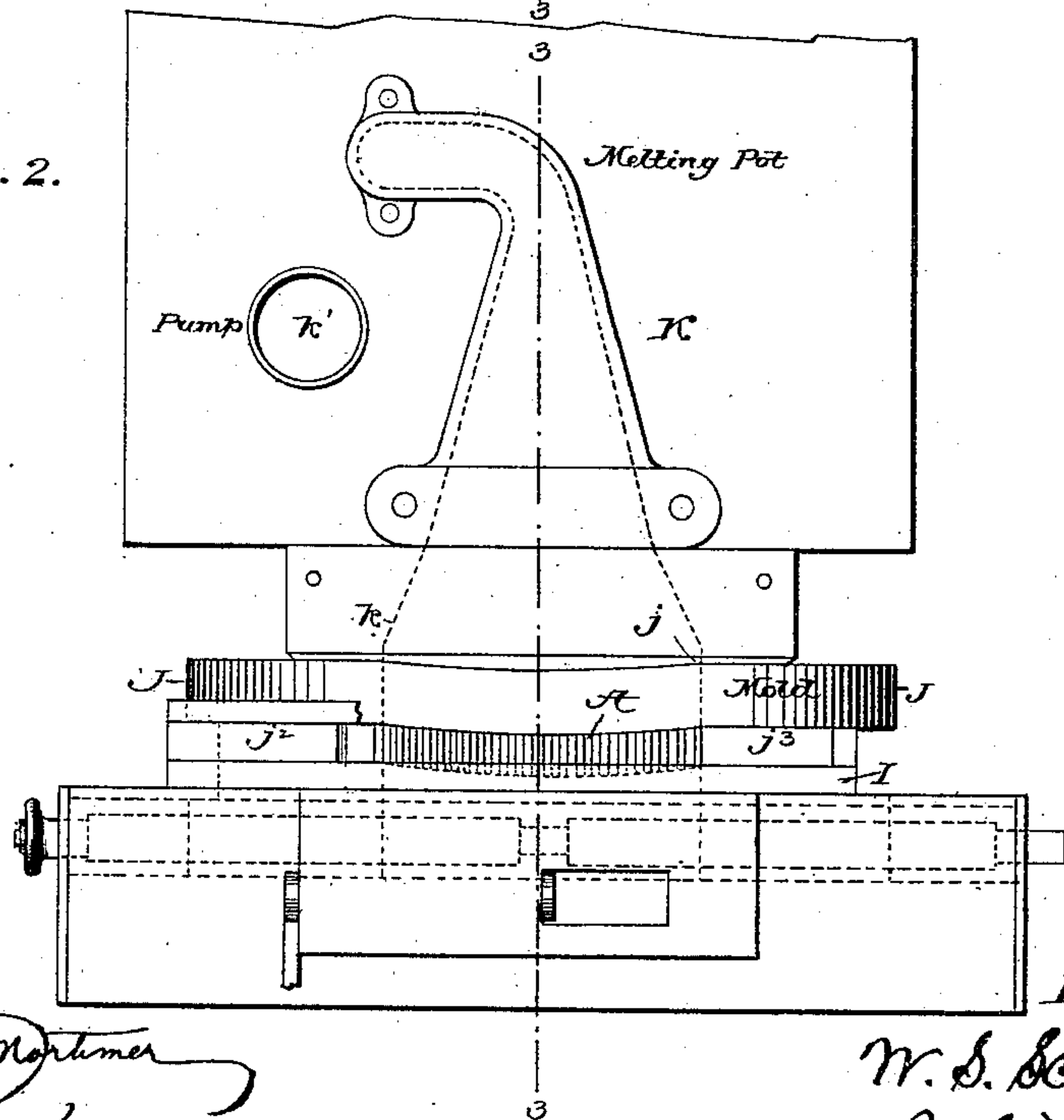


Fig. 2.



Witnesses:

William W. Mortimer  
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Inventor:

W. S. Scudder  
By his Atty.  
Phil T. Dodge

(No Model.)

2 Sheets—Sheet 2.

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Fig. 3.  
on line 3-3

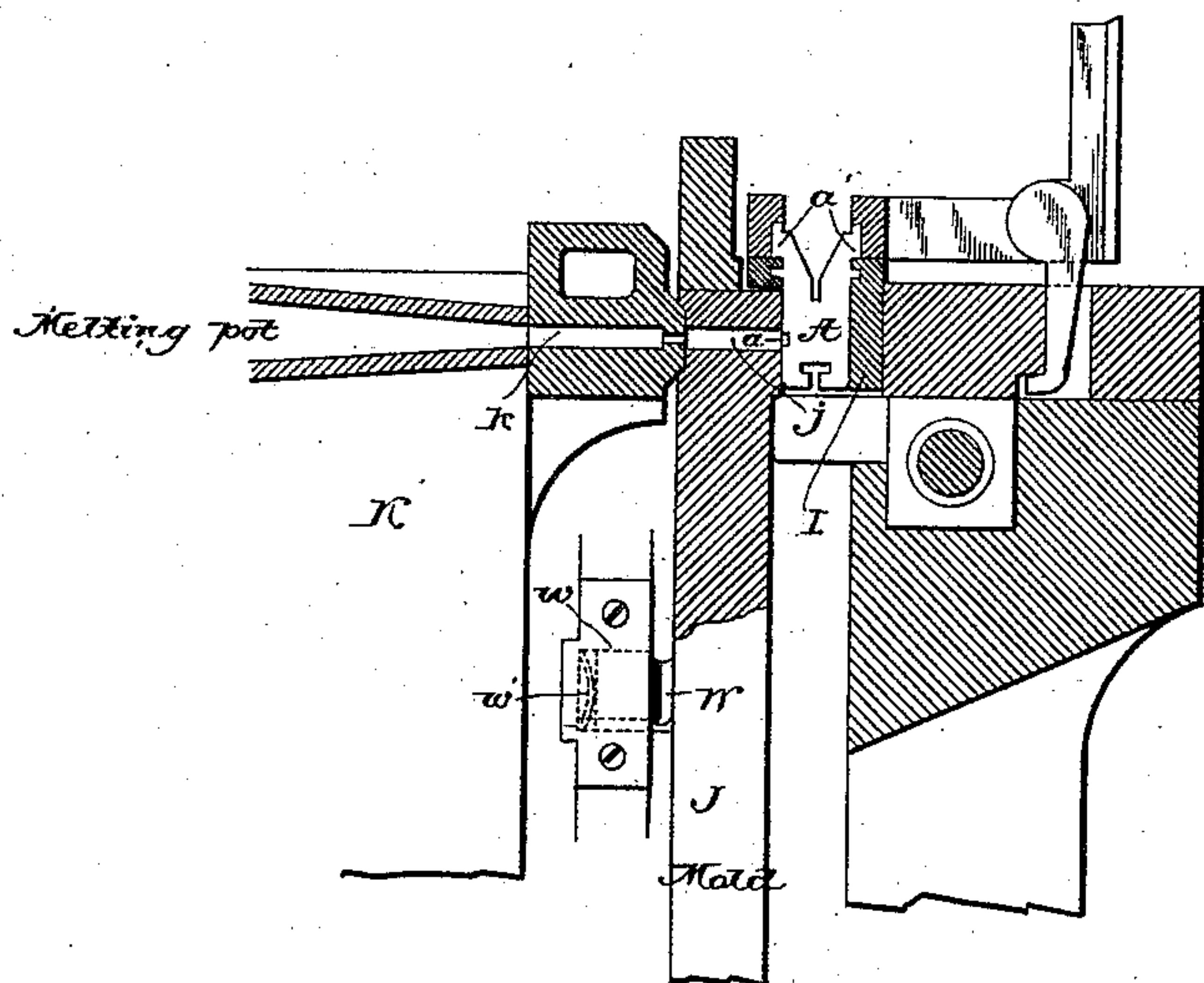


Fig. 7.  
Space bar

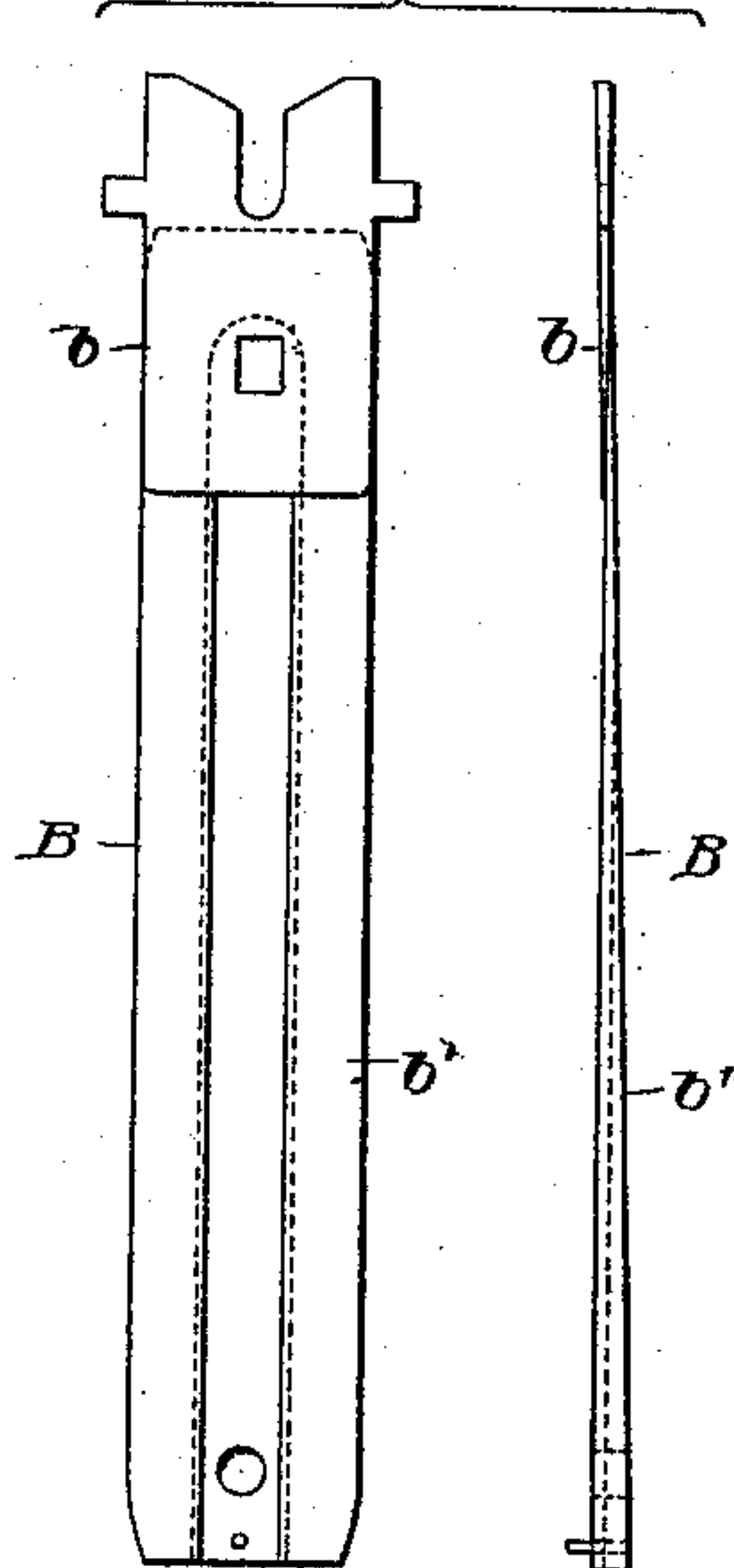


Fig. 4.

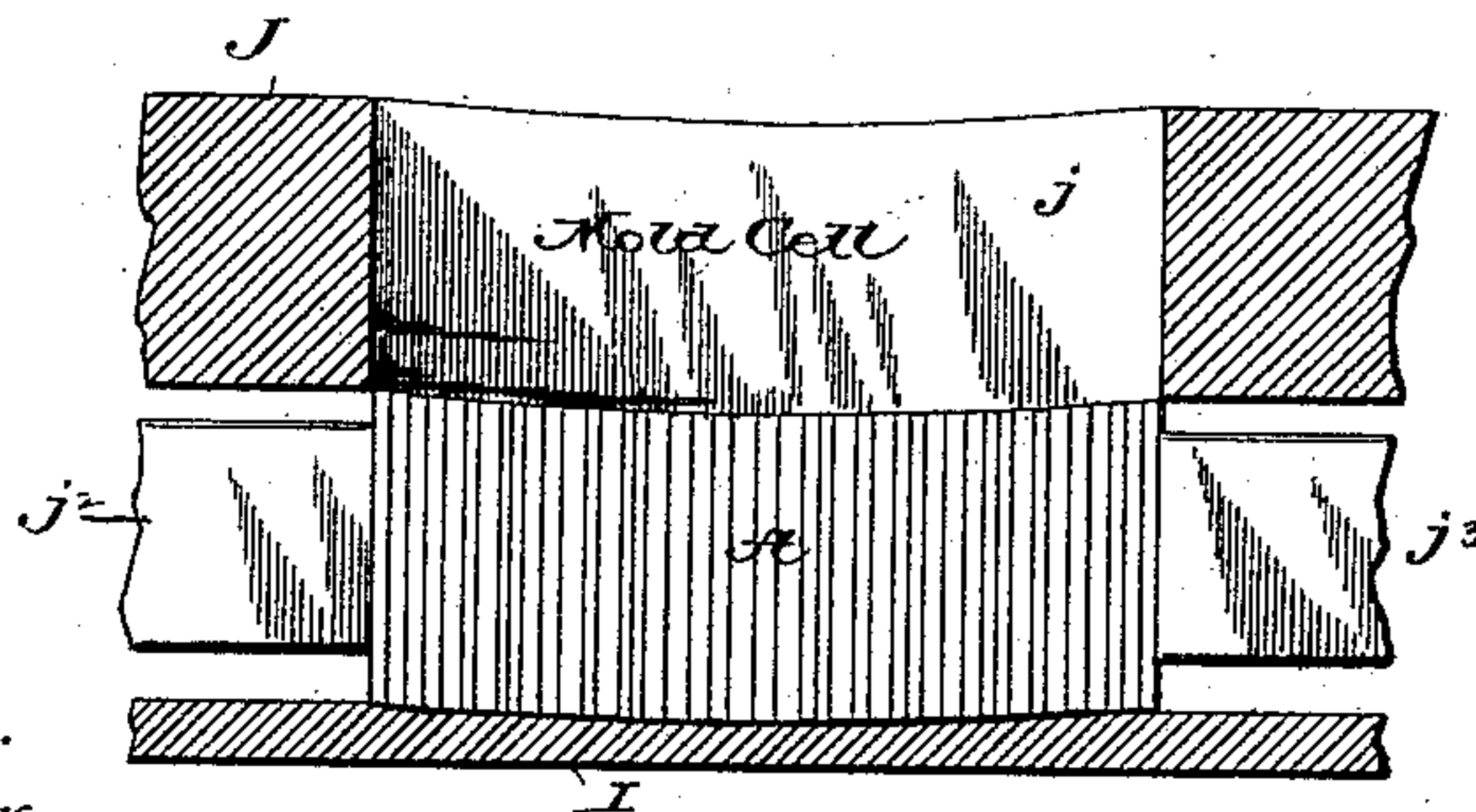


Fig. 8.

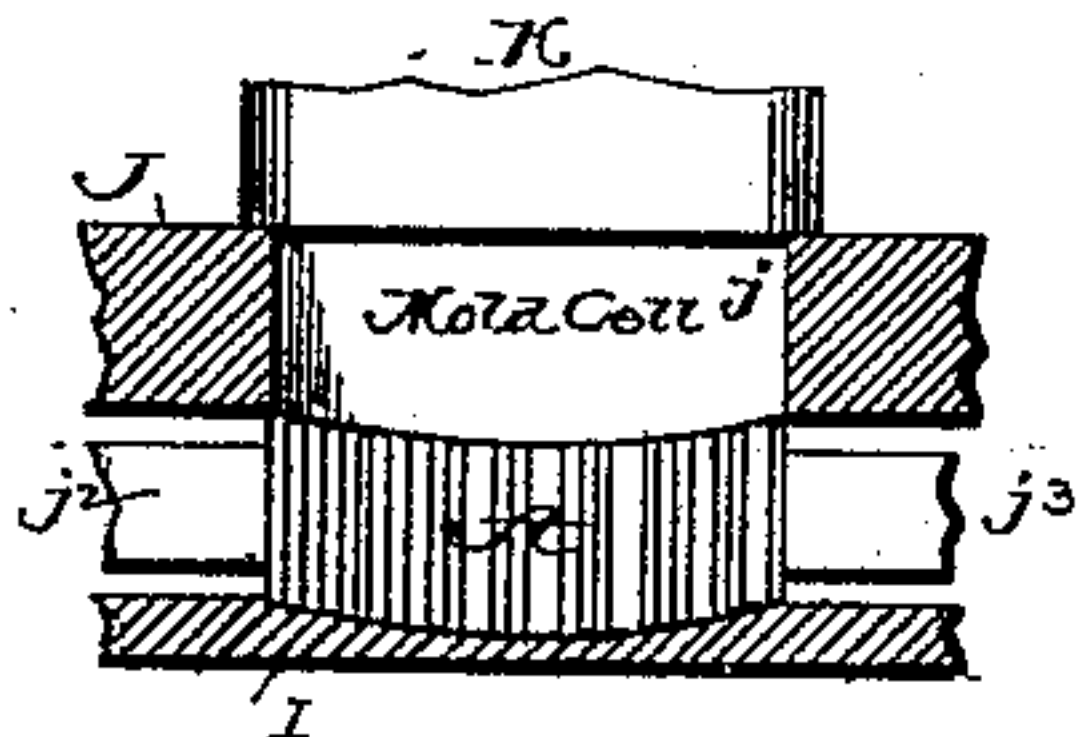


Fig. 6.

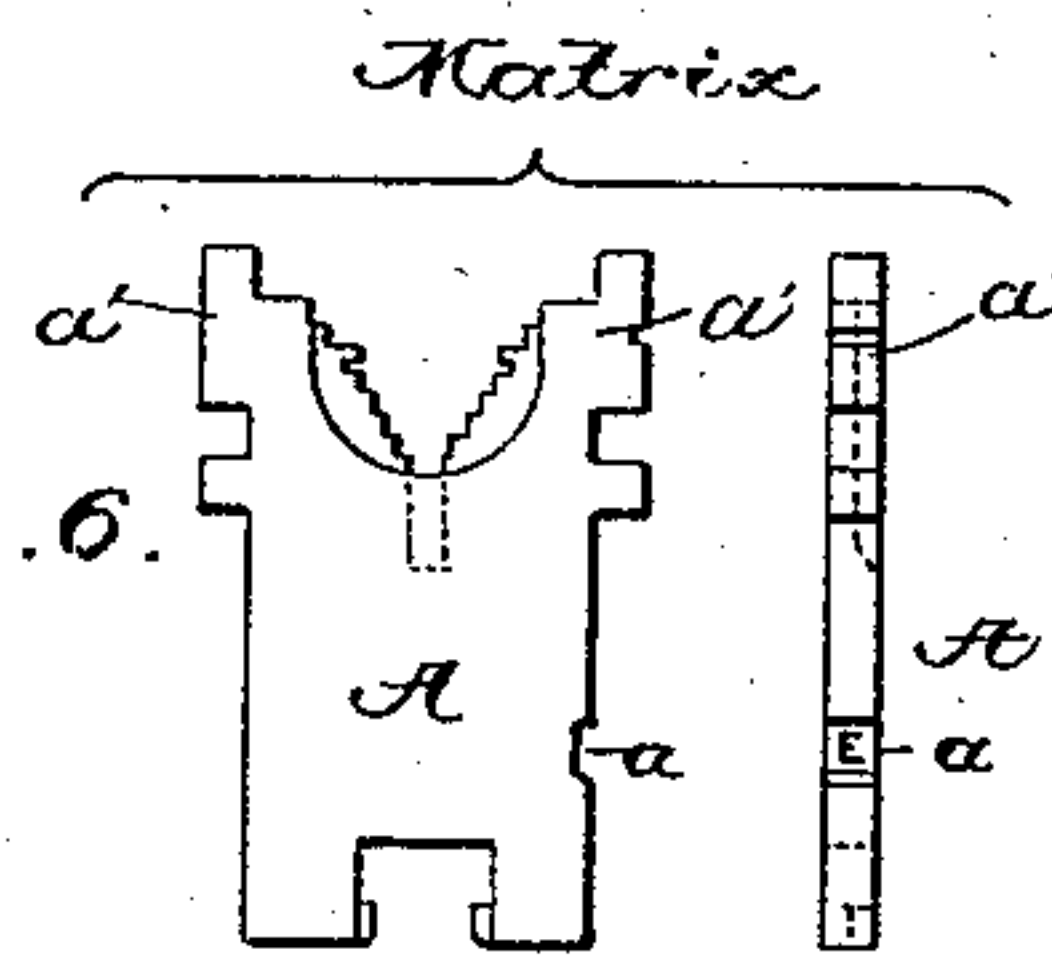
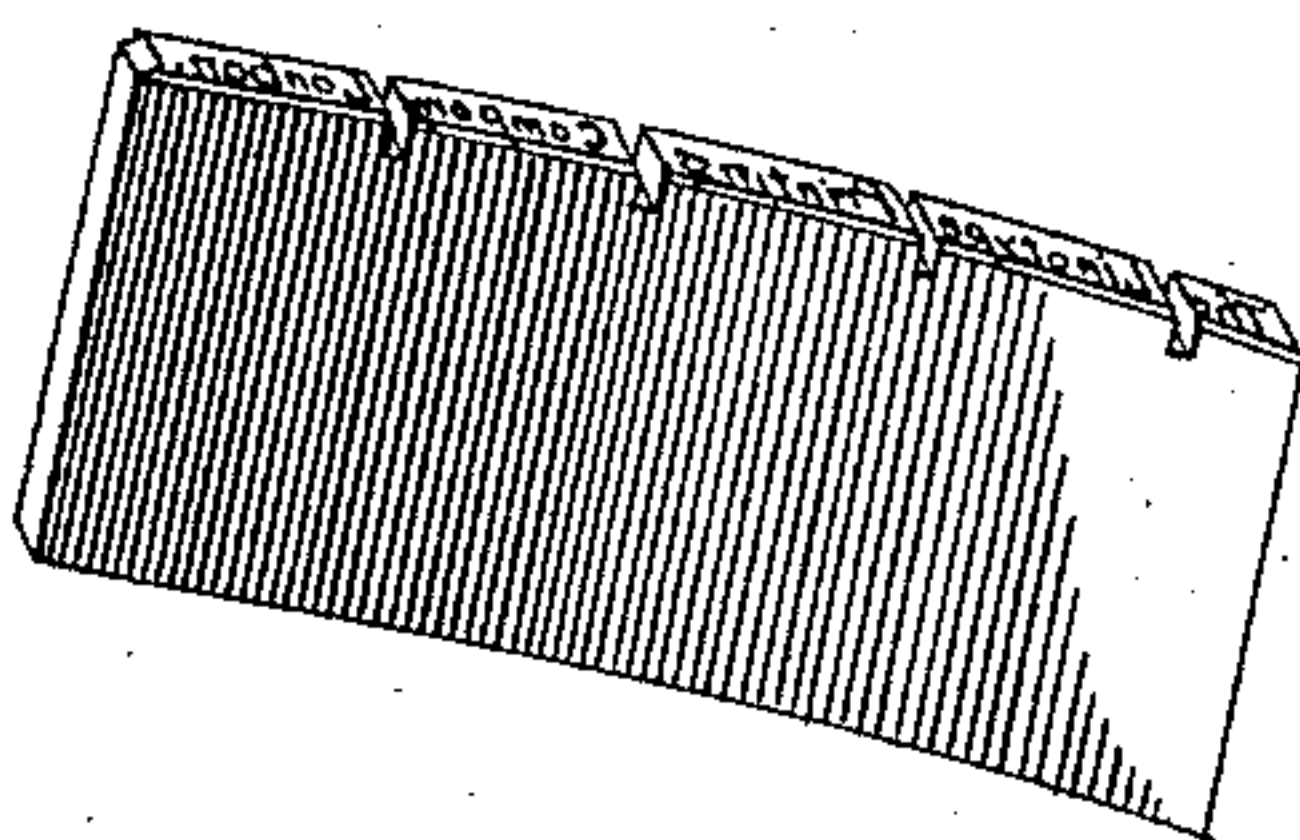


Fig. 5.



Witnesses:

M. M. Martimer

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Inventor:

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By his atty.

Phil. T. Dodge



# UNITED STATES PATENT OFFICE.

WILBUR S. SCUDDER, OF BROOKLYN, NEW YORK, ASSIGNOR TO THE  
NATIONAL TYPOGRAPHIC COMPANY, OF WEST VIRGINIA.

## MACHINE FOR CASTING LINOTYPES.

SPECIFICATION forming part of Letters Patent No. 444,090, dated January 6, 1891.

Application filed June 7, 1890. Serial No. 354,638. (No model.)

*To all whom it may concern:*

Be it known that I, WILBUR S. SCUDDER, of Brooklyn, in the county of Kings and State of New York, have invented certain Improvements in Mechanism for Casting Linotypes, of which the following is a specification.

My invention has reference to what are known in the art as "linotype machines," which being actuated by finger-keys produce as substitutes for movable printing-type linotypes or type-bars, each bearing on one edge the characters necessary to print an entire line. These machines, made under numerous patents to Ottmar Mergenthaler, have as their fundamental features a series of movable interchangeable matrices or female type, which are assembled momentarily in line with spaces across the face of a suitable mold in such manner as to close the same while it is filled with molten metal to form the linotype.

Heretofore these machines have produced only straight linotypes, which were used either on flat-bed presses, or, like ordinary type, in the production of papier-maché matrices, which were subsequently bent to produce curved stereotype-plates or turtles. Now, the aim of my invention is to adapt the machines to produce linotypes curved in their printing-edges, so that they may be used on cylinder-presses; and to this end it consists, essentially, in a mold curved on its face, in combination with matrices and spaces adapted to be arranged in a curved line across its face and suitable clamping devices to hold them in position.

The mechanism for assembling, conveying, and distributing the matrices and spaces, for operating the spaces, for controlling the mold, and for supplying the molten metal may be of any suitable construction, and may be modified at will without affecting the parts to which my invention relates.

For convenience of illustration I have shown my improvement applied to a machine such as is shown in the United States Patent No. 425,140, granted to Ottmar Mergenthaler April 9, 1890. As the other parts may be of the usual construction and are foreign to the present invention, I have shown only such parts as are essentially associated with my improvement, the parts being designated herein

as far as possible by the same letters which they bear in the patent.

In the accompanying drawings, Figure 1 is a front elevation of the mold-wheel with the line of matrices and space-bars and the side clamps in operative position. Fig. 2 is a top plan view showing the mold, matrix-line-clamping mechanism, and melting-pot. Fig. 3 is a vertical cross-section on the line 3 3 of the preceding figures. Fig. 4 is a plan view, partly in section, illustrating the manner in which the matrices are arranged in a curved line. Fig. 5 is a perspective view of the curved linotype, the product of my machine. Figs. 6 and 7 are views showing the matrices and space-bars. Fig. 8 is a sectional view illustrating the invention in another form.

Referring to the drawings, A A represent the matrices, each consisting of a metal plate provided in one edge with the female character or matrix proper *a* and at the top with sustaining-shoulders *a'* at opposite edges. Each of these matrices contains a single character; but they are provided in series to represent all characters to be printed, so that they may be selected and assembled side by side, so as to present in one row all the characters to appear in any one line of print.

B represents one of a series of space-bars, each consisting of a short wedge *b*, provided with sustaining-shoulders at its upper and thicker end, and of a longer wedge *b'*, tapered in the reverse direction and connected inseparably to the first by a sliding joint, so that by moving this longer member upward in relation to its companion the thickness of the space at its operative point may be increased. These spaces are inserted in the line between the matrices at suitable points, and after the composition is completed the spaces are advanced and increased in thickness to elongate or justify the line.

J represents the mold in the form of a vertical wheel having therethrough the slot or mold proper *j*, corresponding in form and size with the required linotype. This mold differs from those heretofore in use in that its front and rear faces around the slot or cell instead of being made flat, as usual, are curved in the direction of the length of the slot, the front face being convex and the rear



face concave. The rear curvature corresponds with that of the cylinder on which the linotypes are to be used, while the front curvature corresponds with that demanded on the printing-edge of the linotypes.

K represents a melting-pot containing a constant supply of molten type-metal and provided with a tubular delivery-mouth  $k$ , adapted to fit against and close the concave rear face of the mold, and with a pump  $k'$  of ordinary form to drive the metal through the mouth into the mold and against the matrices which stand for the time being at the front.

I is a yoke in which the aligned matrices and space-bars are suspended and sustained in front of the mold. This yoke is curved horizontally in its interior so that the active edges of the matrices and spaces may range themselves in a curved line closely against the face of the mold, and is sustained at the front or rise, so that it acts to maintain the line firmly and tightly in place.

$j^2 j^3$  are laterally-acting clamps, by which the matrix-line is confined endwise and its length determined when the spaces are increased to effect the justification.

In operating the machine the line of matrices is assembled and clamped against the mold and properly justified, the pot closed against the back of the mold and the mold filled with molten metal, which assumes the form of a flat longitudinally-curved bar of uniform height, with type on its convex edge. Although the face of the mold is curved, while the edges of the matrices and spaces are flat, or substantially so, I find no trouble in tightly closing the mold thereby, and this because the curvature of the portion of the mold-face opposite each matrix is so slight as to be practically inappreciable. Owing to the fact that all the matrices and spaces are of equal width from front to rear, they may be selected or arranged at will without affecting their action.

W represents a knife to trim the rear edge of the linotype as the mold revolves to present it before the usual ejecting device. It is arranged to slide in a guide  $w$ , and is pressed constantly forward against the rear face of the mold by spring  $w'$ , so that as the mold rotates the knife-edge will follow its curved face and trim the casting flush therewith.

In some cases I propose to use, for presses with polygonal "cylinders," linotypes which are of flat instead of curved form on the lower or back edge, but curved on the front, and in such case the mouth of the pot and the rear face of the mold may be of flat form, as usual, as shown in Fig. 8.

I believe myself to be the first to provide means for assembling and confining flat type side by side with their ends parallel but their faces in a curved line, so that a curved-line impression may be secured therefrom, and it is to be understood that this may be practiced with male as well as with female type, and that the minor details may be modified. The spaces used between the matrices may be of any suitable form and construction.

Having thus described my invention, what I claim is—

1. In a mechanism for casting linotypes curved on the printing-edge, the combination of a mold curved on its face, a series of matrices and spaces adapted to be arranged in a curved line against the face of the mold, and clamping devices to hold said line in place.

2. In a mechanism for casting linotypes, a mold concave at the back and convex at the front, in combination with matrices and spaces adapted to be arranged in a curved line at the front of the mold and clamping devices to hold said line in place.

3. In a mechanism for casting linotypes, the combination of a mold having a curved front and means for supplying the same with molten metal, a series of matrices and spaces of equal width, and a curved support or clamp to hold the matrices and spaces in line against the mold.

4. In combination with a series of type and a series of spaces, each having parallel sides adapted to be arranged side by side in line, clamps adapted to confine said line endwise with the faces of the type in a curved line.

5. In combination with the linotype-mold curved on its face, the yielding knife to follow said face and dress the rear edge of the linotype.

In testimony whereof I hereunto set my hand, this 28th day of May, 1890, in the presence of two attesting witnesses.

WILBUR S. SCUDDER.

Witnesses:

WILLIAM H. SMITH,  
HENRY R. SUYDAM.