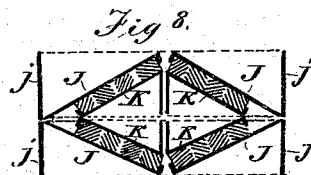
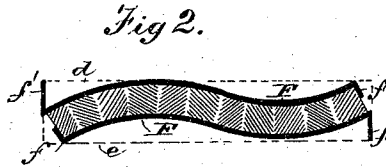
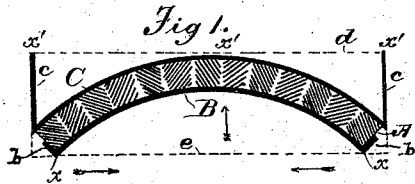


T. H. WINCHESTER.
Line-Curvers for Type.

No. 156,247.

Patented Oct. 27, 1874.



Witnesses;
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UNITED STATES PATENT OFFICE.

THEODORE H. WINCHESTER, OF BELPRE, OHIO.

IMPROVEMENT IN LINE-CURVERS FOR TYPE.

Specification forming part of Letters Patent No. 156,247, dated October 27, 1874; application filed April 8, 1874.

To all whom it may concern:

Be it known that I, THEODORE H. WINCHESTER, of Belpre, in the county of Washington and State of Ohio, have invented new and useful Line-Curvers for Type; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The object of this invention is to enable printers to arrange curved and angular lines of type with great facility and exactness; and consists, mainly, in providing the otherwise unsupported end or ends of a curved or angular metal strip, with a supporting foot or flange, adapted to furnish a proper bearing-point, so that it may be held accurately in place without the use of quadrats or other intervening substances. It further consists in providing the supported end of a curved or angular metal strip with a clamping-flange, the unsupported end having a supporting foot or flange. It still further consists in the combination of two or more metal strips, adapted to clamp the line or lines of type, and furnish, also, the necessary bearing-points, so that it or they may be used in connection with straight lines without quadrats or other intervening substances.

In the drawings are shown various designs in which my improved line-curvers are employed.

To enable others to make my line-curvers and use them properly, I will proceed to describe the principles upon which they are constructed, and various ways in which they may be used.

The general principles upon which this invention is based are as follows: In forming curved or angular lines of type, I furnish that end or those ends of the curved or angular metal strips holding the type in place, which curves or curve, or inclines or incline, from what may be termed the base-line, with a supporting foot or flange extending back to the base-line, so that the otherwise unsupported end or ends is firmly held without the use of quadrats. I also provide the supported end of the metal strip, or that end which rests upon the inner base-line, with a clamping-flange, by which means the whole line of type

is strongly clamped together when straight leads are placed upon either side, and the usual pressure is applied in locking up the form.

Figure 1 represents the application of my principles to a single curve. A represents a curved line of type. B represents the bent metal strip supporting the type upon the inner side of the curve, the ends of which, being supported by the lead or base line *e*, are provided with the small flanges *b b*, adapted to clamp a line of type, as shown. C represents the bent metal strip upon the outer side of the curve, the ends of which, being otherwise unsupported, are provided with feet or supports *c*, extending from the end of the curve to a point in line with the point of the curve, which is the lead or base line *d*, as shown. *d* and *e* represent what may be termed base-lines, consisting of ordinary straight leads, which are employed to make the outside lines of the job straight, in order that it may be treated like a similar quantity of ordinary type. The lead upon the inner side of the curve has the bearing-points *x x*, and that upon the outside of the curve, the points *x' x'*.

Fig. 2 represents the application of my principle to a double curve. The unsupported ends in this case, instead of being upon the same side, as shown in Fig. 1, are upon opposite sides. F F represent bent metal strips of identical form, each being provided with a flange, *f*, at one end, adapted to clamp the type, and a supporting foot, *f'*, at the other, the position of each, however, being relatively reversed. The bearing-point of the supporting-foot, the point of the curve, and the supported end, coincide with the base-line formed by the leads *d e*, as shown.

Fig. 3 represents the application of my principle to diagonal or oblique lines. The principle is the same in this case. The outer end of line *h*, being otherwise unsupported, is provided with a foot, *y*, extending to the face-line *d*; but the inner end of the line being supported, is provided with the clamping-flange *y'*. Upon the opposite end of the job the outer end of the line *h'*, being otherwise unsupported, is provided with a foot, *z*, extending to the base-line *e*, and its inner end being supported with the clamping-flange *z'*. The

intermediate lines being supported at each end by the leads *d* and *e*, are provided with clamping-flanges in reversed positions, as shown. *I I* represent short metal strips, adapted to hold the short lines of the type in the angles of the end strips, as shown.

Fig. 4 represents the same principle applied to double curved lines, arranged obliquely. Figs. 5, 6, and 7 represent modifications of the designs shown in Fig. 1. Fig. 8 represents the same general principle applied to form a diamond-shaped figure.

J J represent the metal strips upon the outside of the lines of type, the otherwise unsupported ends of which are provided with the feet *j j*. *K K* represent the metal strips upon the inside of the lines of type, provided with similar feet and clamping-flanges.

A very marked advantage possessed by my line-curvers is, that when pressure is properly applied to them when in use, such as locking up the form, the tendency is to tightly clamp the line of type throughout its entire length, so that no single type can fall out, the result arising in part from the side pressure, which forces together the lower ends of the inner curved strip, as indicated by arrows, Fig. 1, and consequently causes it to bind its entire length. By means of these line-curvers, also, designs can be quickly formed by an inexperienced person, as the skill usually required in adjusting quadrats is not needed. It will

be understood, also, that a great saving of time is effected by the use of this invention.

The modifications capable of being made upon these principles are very numerous, giving printers an excellent opportunity for the exercise of taste and judgment in the formation of new designs.

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

1. A curved or angular metal strip, having its otherwise unsupported end provided with a supporting foot or flange, substantially as described.

2. A curved or angular strip, having its otherwise unsupported end provided with a supporting foot or flange, and its supported end provided with a clamping-flange, substantially as described.

3. The combination of two or more metal strips, adapted to clamp the line or lines of type, provided with supporting feet or flanges, to furnish the necessary bearing-points, so that the types may be used in connection with straight lines without quadrats, substantially as described.

This specification signed and witnessed this 8th day of April, 1874.

THEO. H. WINCHESTER.

Witnesses:

H. E. MATTHEWS,
E. R. BEADLE.