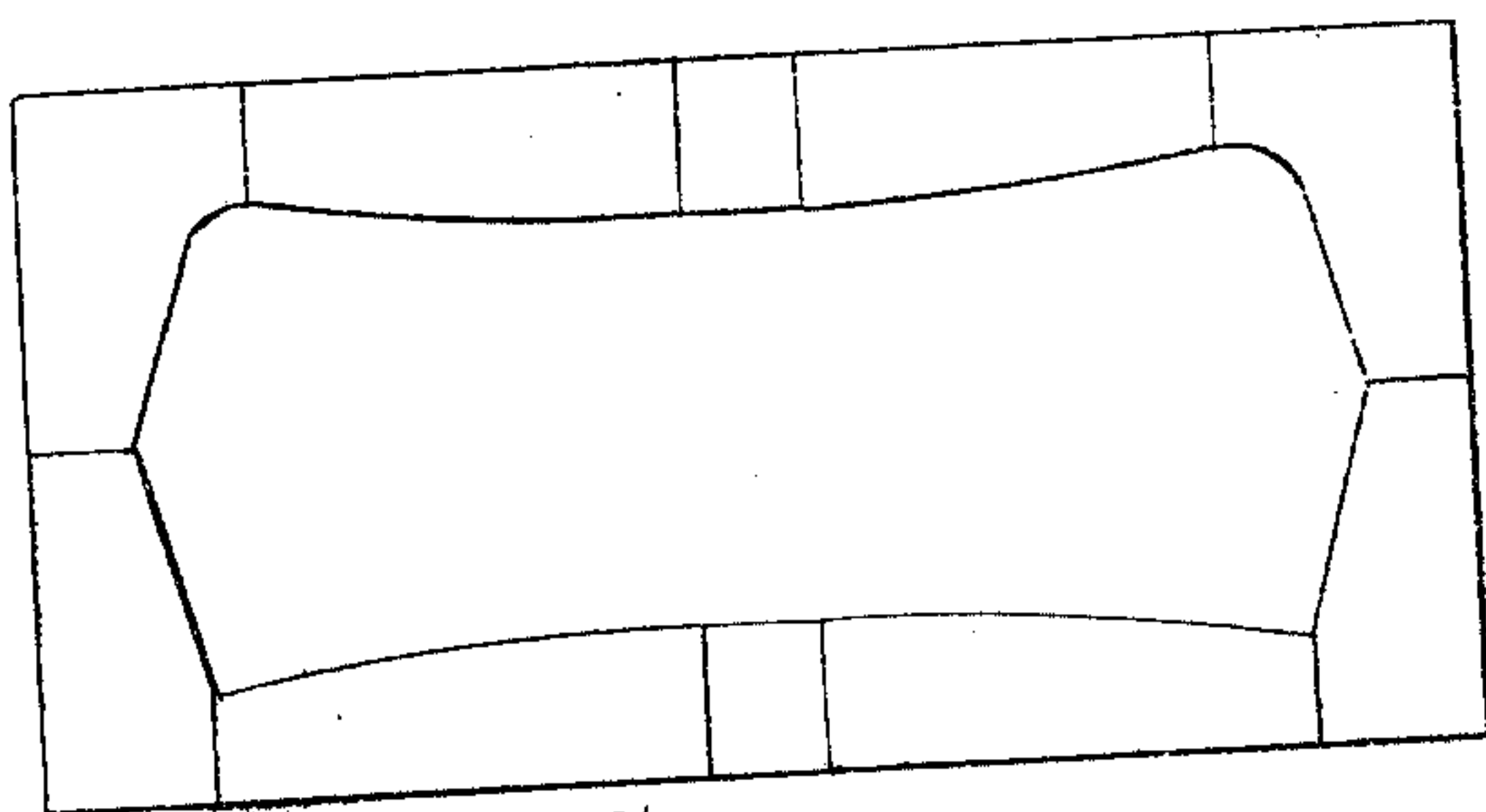
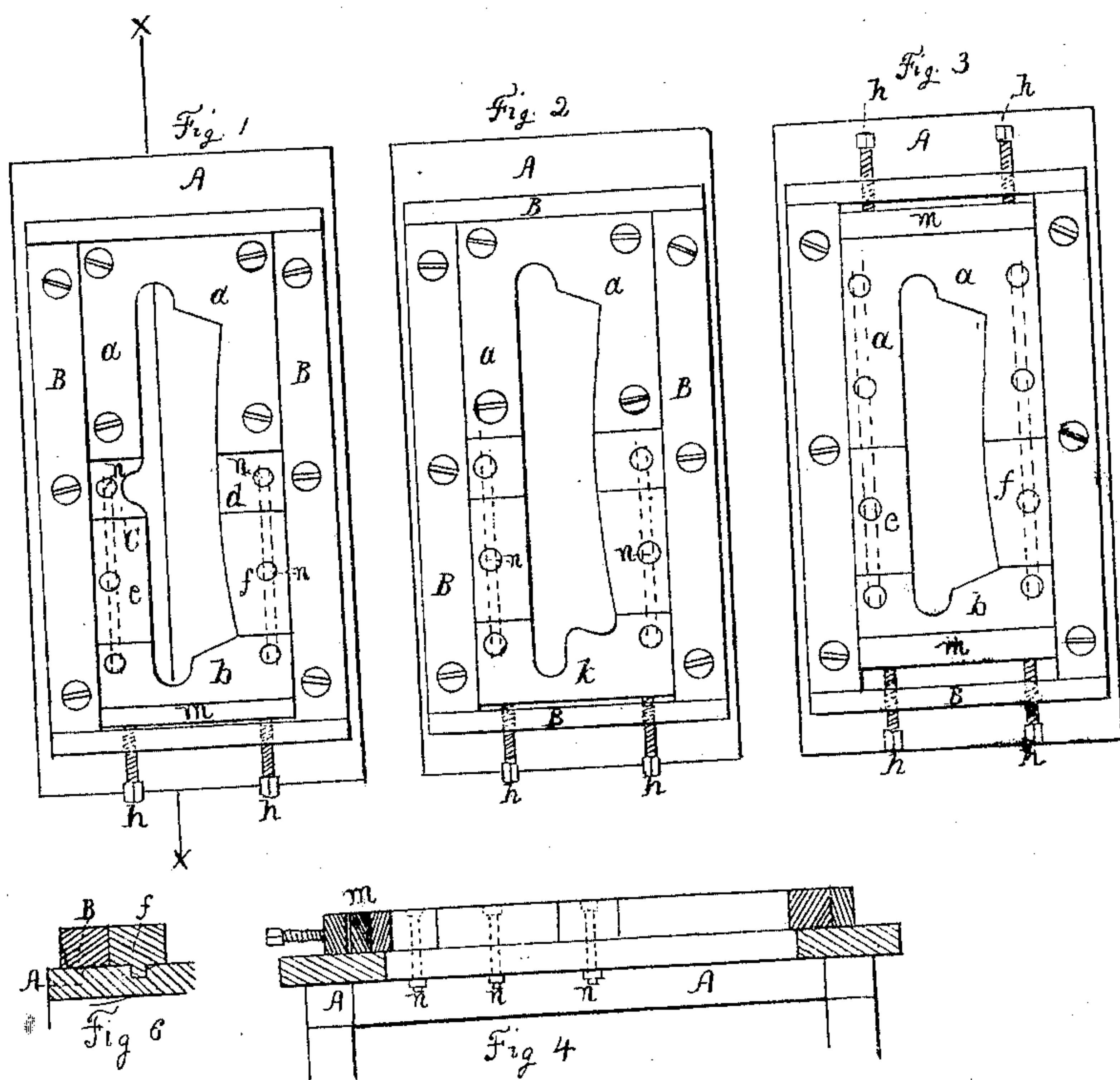


E. Jeffers, Collar Machine.

Patented Jan 26/1869.

No. 86162.



Witnesses
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 J. Brown Lord

Inventor.
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 Chas. F. Sleeper, atty.

United States Patent Office.

EBENEZER JEFFERS, OF BOSTON, MASSACHUSETTS.

Letters Patent No. 86,162, dated January 26, 1869.

IMPROVEMENT IN DIES FOR CUTTING OUT PAPER COLLARS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, EBENEZER JEFFERS, of Boston, in the county of Suffolk, and State of Massachusetts, have invented certain new and useful Improvements in the Construction of the Matrices of Dies; 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 accompanying drawings, making a part of this specification, in which—

Figures 1, 2, and 3 are plans, showing the adaptation of my invention to the purpose of cutting paper collars;

Figure 4 is a section through the line *x x* on fig. 1;

Figure 5 is a plan showing my invention as adapted to cutting paper cuffs; and

Figure 6 shows a form of holding the types to the bed-plate.

In the said drawings—

A represents a table, which supports the matrix of a die.

B, a "chase," similar to those used in printing to hold the type.

a, b, c, d, e, f, k, and *g,* types to be placed within the chase.

h h are set-screws to close up the types within the chase.

n n are set-screws, which pass from the type through slots in the table A, and are held by nuts beneath the table.

m m are "furniture" to assist in setting up the form.

My invention consists in forming the matrix of a die with a number of pieces, or types, put together in a chase, as types are made up into a form, and holding them firmly in position, so that the male portion or punch can engage the cutting-edge of the matrix.

It is particularly intended for the manufacture of paper collars, paper cuffs, &c., but it can evidently be applied to many other purposes.

Paper collars are made of different styles, and with various sizes for each style, and when the matrix is in one piece, it is necessary to employ a separate matrix for every change of size, involving large expense in procuring a set sufficient for the different sizes of one style of collar.

I am aware that dies have been made for the purpose of cutting the ends of a collar, and that they have been so arranged as to be adjusted by moving them to and from each other, so as to conform to the varying sizes of collars.

I particularly refer to the patent of George K. Snow, November 28, 1865, where this is shown, but no way is provided for cutting the sides of the collar by the same operation which cuts the ends.

I am also aware that Charles Spofford patented, November 19, 1867, an improvement upon the above-mentioned invention, in which the end cutters are adjusted to change the size of the collar by sliding them on the other cutting-edge; but it is evident that this

mechanism cannot be used to perform the work done by my invention, as it would not cut either of the forms shown in my drawings, and that its capacity to vary the style, as well as the size, is very much less than the capacity of my invention. In fact, an almost unlimited variety of styles and sizes, not only of collars and cuffs, but of other shapes, can be produced by the use of my invention, while his is confined to such four-sided shapes as have one side upon which the end cutters can slide, and is also confined to such shapes as have the two sides parallel, for, if not parallel, the cutter for the other side cannot be kept in contact with the end cutters, which must slide between the side cutters. This will be clear, although in his patent he has nowhere suggested the use of but three cutting-edges, and, in fact, a fourth would be useless for cutting paper collars whose sides are parallel.

By my invention, I have overcome the necessity of having sets of matrices each in one piece, for varving the forms or sizes of articles to be cut, as I make the matrix in portions, like types, and arrange those portions in such a way that any of them can be removed, and, if necessary, others substituted in their places, but when the parts are set up for use, they become a complete matrix, as strong and perfect as if made of a single piece of metal.

The uses for which this invention can be made available are explained to some degree by the drawings.

In figs. 1 and 2, the matrices of collar-dies are represented where types are used, one of the types, *a*, being shown as screwed to the table, and the others made movable.

In fig. 2, the pieces *c* and *b* of fig. 1 have been removed and the pieces *g* and *k* substituted therefor, giving a different style of end to the collar, and also a different centre; and

In fig. 3, both centre-pieces *c* and *d*, shown in fig. 1, are removed, and the pieces *a, e, f,* and *b*, are brought together, reducing the size of the collar to be cut.

By changing the length of these centre-pieces, or omitting them entirely, the various sizes can be produced, and by changing the end pieces or intermediate pieces, or both, any desired form of matrix can be produced.

The same process with the cuff-die, shown in fig. 5, will produce the same results, and readily admit of any change of size or pattern, to conform to the requirements of the work to be performed.

The form of the cutting-edges of these types will depend, of course, upon the articles to be cut, but any person skilled in the art of cutting paper collars will be enabled readily to design types of such form as will be necessary to produce the various sizes and styles; and as he will easily perceive such lines as the different styles and sizes have in common, the types will be so made that the same type can be used to produce any style or size of which it is a component part. In fact, it

will rarely happen that all the type will require to be changed, even when a different style is to be cut, and always but few changes will be required when different sizes of the same style are to be cut.

The same remarks apply, of course, to matrices of dies for cutting other things.

I have shown the types as connected with the bed by set-screws through it, but this is not necessary, as a simple flange upon the type, fitting in a groove in the bed-plate, as shown in fig. 6, would serve to prevent lateral derangement of the form, and the set-screws *h h* passing through the chase would prevent all other, and fasten the types into a perfect-working matrix.

I do not claim a matrix formed of cutters, such as are described in Spofford's patent above referred to, in which the cutting-edge of a side cutter is lengthened or shortened by sliding the end cutters upon it; but

I do claim the matrix of a die, when composed of sectional cutters, constructed substantially as described, so that the whole cutting-edge of each section shall form a portion of the whole cutting-edge of the matrix, all substantially as and for the purpose specified.

EBEN'R JEFFERS.

Witnesses:

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