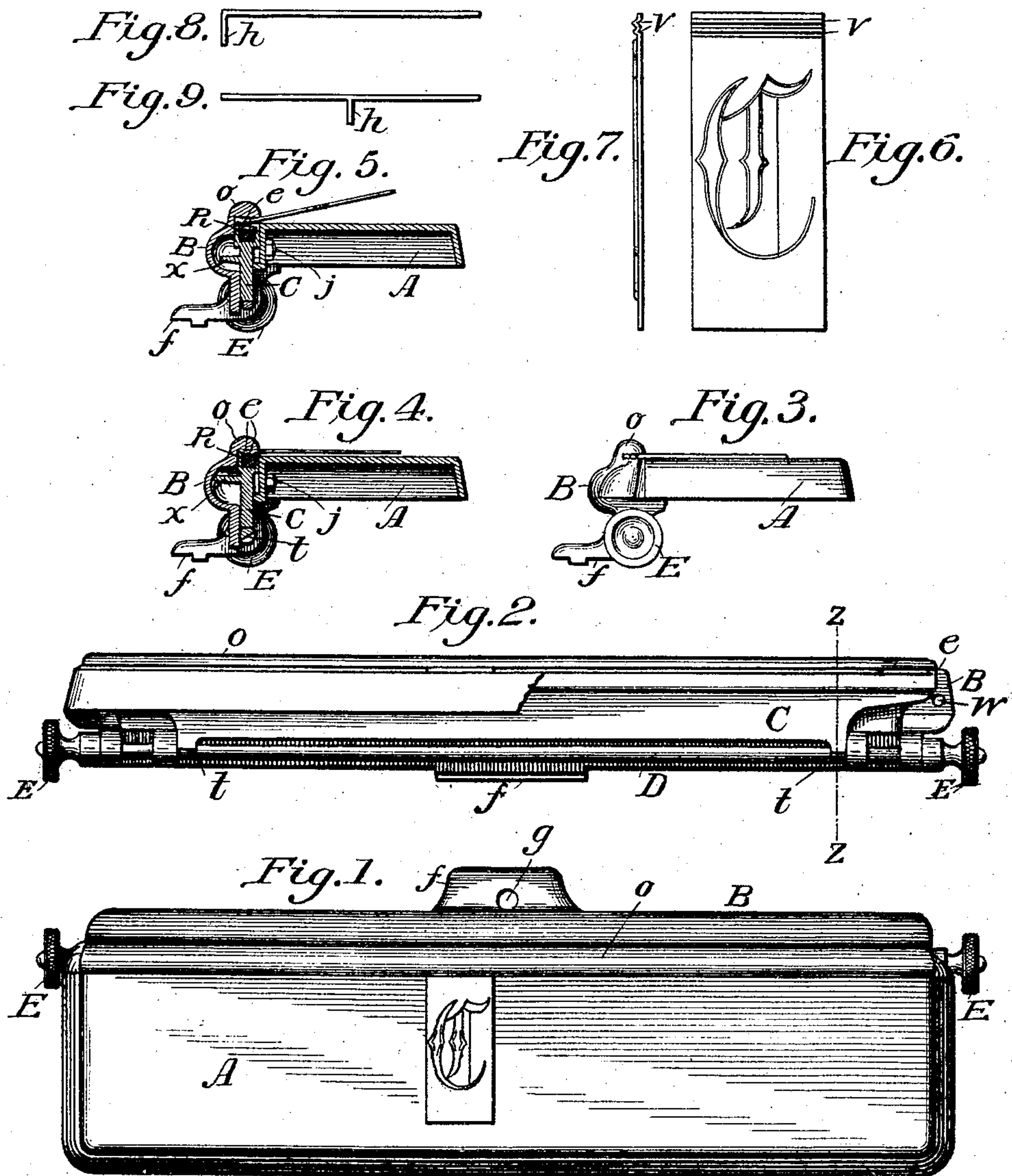


No. 765,770.

PATENTED JULY 26, 1904.

A. E. FRANCIS.
ENGRAVING MACHINE.
APPLICATION FILED SEPT. 25, 1903.

NO MODEL.



WITNESSES:
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ENGRAVING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 765,770, dated July 26, 1904.

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To all whom it may concern:

Be it known that I, ALLAN E. FRANCIS, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented new and useful Improvements in Engraving-Machines, of which the following is a specification.

My invention relates to improvements in engraving-machines in which the machine depends upon the tracing of pattern-letters for designs. These patterns or "type," as they are called, have previous to this time been made with a flange on each piece, the flange depending from the upper end or some portion of the body of the type. This flange is clamped in the type-table to secure the type in position. These flanges projecting from the type are a great objection. They are not only disadvantageous in handling the type, but are unfavorable to the sale of machines. The flanges are necessarily from three-sixteenths to three-eighths of an inch deep, which prevents the pieces from being laid one exactly upon another. Cases or trays are required to hold such type, and they are either made so that the type is thrust into slits, leaving the end flanges exposed, or it is laid in trays having grooves into which the flanges sink and hold the pieces in position. The cases containing the different fonts for a machine's outfit are stacked up in a pile, or in the case of trays the space to be occupied must equal the area of the number of square feet that the surface of type-trays sum up, which, if the outfit is large, is a serious objection. The type when taken either from case or tray must be distributed back again, requiring thought and time, complicating the matter of operating, and when these receptacles are stored in cases or cabinets for the sake of appearances it puts the operator to great inconvenience, and few jewelers care to expose such an array of stuff in an elegant salesroom. It is always an objection and has sometimes excluded the machine altogether for want of room. Type has been made either of sheet or cast metal or of a composition and has been either too heavy, too thick, or too crude to be favorably accepted as a suitable means to the end.

The object of this improvement is attained

by reducing the type to thin slips of celluloid, so that they can be laid one upon another, not unlike cards in a pack, and by providing a suitable type-table.

In the arrangement here shown and described the objectionable features mentioned are eliminated by the reduced bulk and compact form of the new type. Placed on edge in three packs in small, neat, three-part boxes—the caps in one pack, the lower-case letters in another, and the figures in a third—when it is desired to set up an inscription or a name the caps are taken in the hand as one would take a euchre-deck and the required letters are thrown out as counters are thrown from a pack. In this way the letters to be used are taken from the font and are then secured in the type-table, as hereinafter shown. To distribute it after used, all that is necessary is to bunch the capitals in one lot and the lower-case in another and return them collectively to their respective places in the box. Celluloid has the advantage of being light in weight, is strong, and wears smooth under the tracer. It takes a beautiful polish and can be obtained in a variety of colors and shades. It is the only material yet found that fills every requirement necessary in engraving-machine type.

It is to overcome the grave objections above mentioned that I have devised this flangeless type and the means for holding it described and set forth in this specification; and I attain these objects by the type and mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a plan view of the type-table. Fig. 2 is a side elevation having a section cut away to show the working mechanism. Fig. 3 is an end elevation. Fig. 4 is a sectional view made on line *z z*, Fig. 2. Fig. 5 is the same as Fig. 4 except that it shows the way of inserting type into the gripping-head. Fig. 6 is a plan view of a flangeless type. Fig. 7 is one side of type shown in Fig. 6. Fig. 8 is a side elevation of an old type with flange at upper end. Fig. 9 is a side elevation of an old type with flange depending from central portion.

Instead of flanges *h h* (shown in Figs. 8 and

9) I put a groove or grooves *v v* (shown in Figs. 6 and 7) across the upper end of each piece of type, by means of which it is securely held in perfect alinement in table, as herein-
 5 after explained. A single groove is sufficient to hold it firmly; but as the tongues are delicate it is better to have more than one, so that if in continued use one becomes damaged another will perform the work; otherwise mechanically the type resembles the old sheet-
 10 metal type used on the first machines made.

The type-table is cast in three parts A, B, and C. A is the table-top. B is the base, by which it is secured to the base of machine by
 15 a cap-screw which passes through hole *g* in the tongued foot *f*. C is the grip that catches and holds the type. On the back side of C is a flange *w* to keep it from warping in casting. It is to house this flange that the roll at back
 20 of base is made. On the lower portion of the front of base B four lugs are formed, through which rod D passes and in which it finds bearings. Rod D is provided with thumb-wheels at the ends, by which it is turned. Rod D is
 25 cut away in two places to form cams *t t* for elevating grip C, which rests on these cams, as shown. The upper edge of roll of base terminates in a ridge *o*, forming a projection over the grip, and on the under side of this projection is milled a tongue or tongues (shown by
 30 *e*) that fit into the groove or grooves *v v* in type.

The table-top is flat and stiffened by a rim on sides and ends. It is attached to the base
 35 by two cap-screws *j j*, that pass through the inner part of rim into tapped holes in base, one of which is shown at *w*, Fig. 2. These two parts are so formed as to leave a chamber between them, in which grip C works up and
 40 down to hold and release the type. An opening is left between the inner edge of the table-

top and the under side of tongued surface against which the grip acts. The upper edge of grip C is grooved and contains a rubber cushion R. To insert a type, it is thrust into
 45 the opening, as shown in Fig. 5, with lower end elevated. Then it is dropped flat on the table, and the tongues and grooves engage, and it can be slid along and at same time is held in alinement by the tongues and
 50 grooves. When the type to be used is all set in its place, the rod is turned by the thumb-wheels E E until the cams have lifted the grip and it can be turned no farther, when it will be found that all of the type is held as in a
 55 vise. The rubber cushion of the grip presses the type up against the tongued projection, as stated, and provides for any slight inequality that might exist in the type. A partial reversed turn of the thumb-wheels drops the
 60 cams and the grip that rests upon them and releases the type.

I claim—

1. Engraving-machine type or patterns having a groove or grooves across the upper end
 65 for the tongue or tongues of a table type-holder to enter to hold the type in position on the type-table.

2. A type-holding table, for engraving-machines, having a back, a table-top and a rod
 70 cut to form cams; the back attached to the base of the machine and the table-top screwed to the back leaving a chamber between the two; a cushioned grip in the chamber resting on the cams; the rod held in bearings on the
 75 back and the rod actuating the grip by means of the cams as shown.

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Witnesses:

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