

(No Model.)

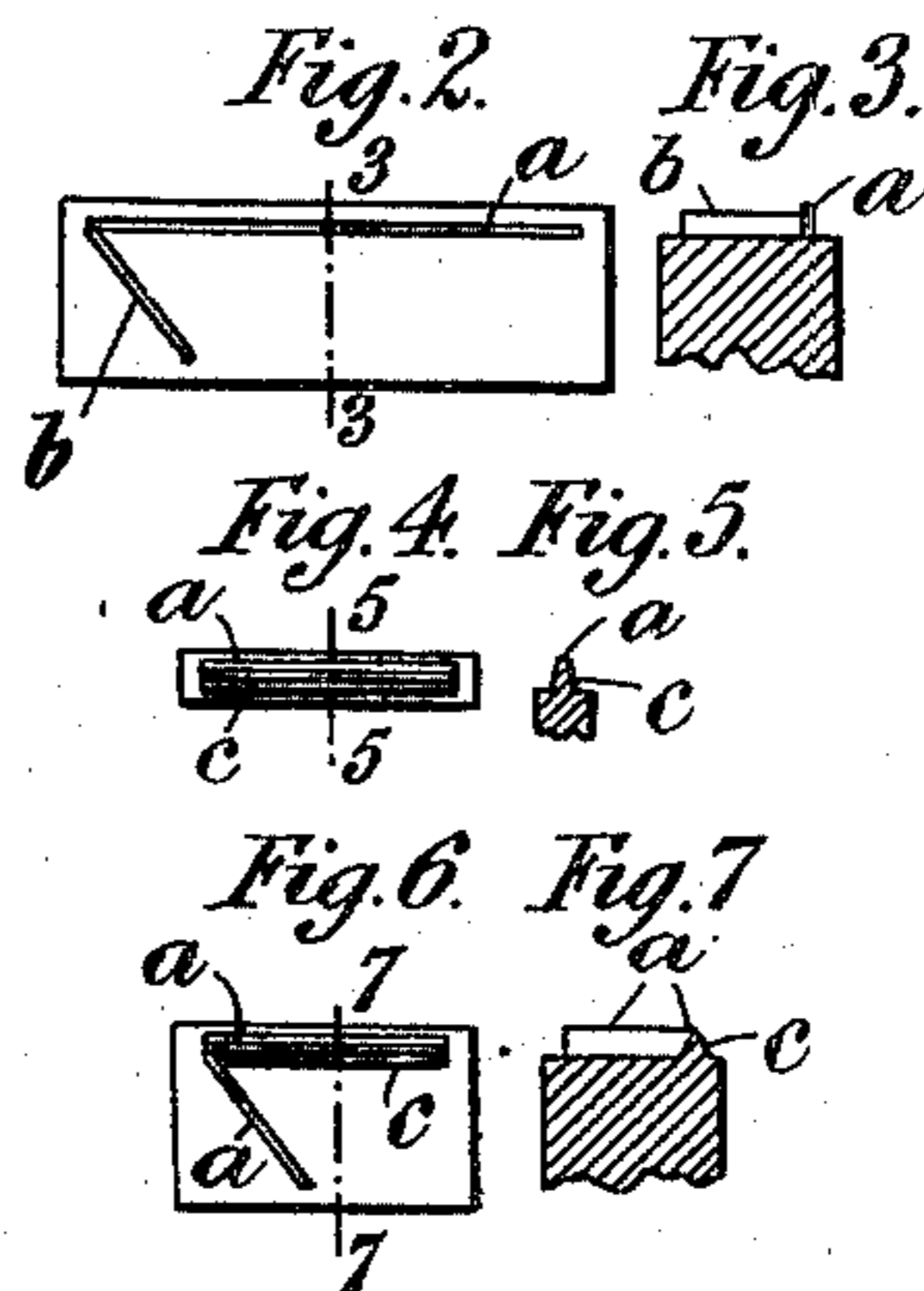
W. LITCHFIELD.
TYPE.

No. 598,524.

Patented Feb. 8, 1898.

Fig. 1.

<i>Light</i>		<i>Heavy</i>	
<i>symbol</i>	<i>representing</i>	<i>symbol</i>	<i>representing</i>
/	i	✓	y
✓	w	✓	wr
a	ā	d	ah
e	ē	e	ē
l	ī	l	ī
o	ō	o	aw
u	ū	u	ū
8	ö	8	ōō
8	e of her	8	ow
/	fr	/	vr
~	ch	~	j
~	k	~	g
/	h	✓	sh
s	s	ss	sz
—	th	—	thr
—	t	—	d
~	n	~	ng
(m	(mp
/	p	/	b
(f	(v
✓	kr	✓	gr
~	kl	~	gl
/	r	/	l
8	st	8	str
7	tr	7	dr
~	nt	~	nd
~	ns	~	ncs
/	pr	/	br
/	pl	/	bl
2	fl	2	fly



Witnesses
Guy E. Davis.
A. W. Miller.

Inventor
William Litchfield
By his attorneys
Paldwin Davidson Wright

UNITED STATES PATENT OFFICE.

WILLIAM LITCHFIELD, OF LONDON, ENGLAND.

TYPE.

SPECIFICATION forming part of Letters Patent No. 598,524, dated February 8, 1898.

Application filed September 3, 1897. Serial No. 650,528. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM LITCHFIELD, a subject of the Queen of Great Britain, residing at 26 Lewisham Park, London, in the county of Kent, England, have invented certain new and useful Type, of which the following is a specification.

In type-writers as at present constructed numerous finger-keys are required, one for each character employed, whether it be a capital letter, a small letter, a cipher, a shorthand sign, a punctuation, or the like, or if one finger-key be made to serve for two or more separate type the mechanism is complicated thereby.

According to my invention the number of finger-keys required in a type-writer is reduced by the employment of type which print different characters when the finger-key is struck with different degrees of force. For this purpose the face of the type is made duplex—that is to say, it has printing surfaces in different planes. Thus, to take the simplest illustration, the same type may be employed to print a comma and a semicolon. In this case the comma will stand somewhat higher on the type than the dot stands. Consequently when the key is lightly struck the comma alone prints, but when the key is struck with more force the dot also produces its impression. In this way, where the alphabet is suitably designed, a great reduction may be made in the number of finger-keys without in any way complicating the machine. The type of hand-stamps may similarly be made with duplex printing-faces.

The drawings illustrate the application of the invention to a type-writer producing a special system of shorthand.

Figure 1 is a table, the first column of which

shows the symbols produced when each of the thirty keys is struck lightly and the third column the symbols produced when the same keys are struck heavily. The second and fourth columns give the letter or combination corresponding to each symbol. Figs. 2, 4, and 6 are enlarged plan views of the type producing “th” and “thr,” “t” and “d,” and “tr” and “dr,” respectively. Figs. 3, 5, and 7 are sections on the lines 3 3, 5 5, and 7 7 of Figs. 2, 4, and 6, respectively.

As shown, the symbols in column 3 of Fig. 1 differ from those in column one either by the addition of a line, by the thickening of a line, or by both. Fig. 2 is an example of the first, and Figs. 4 and 6 of the second, method. The addition of a line is produced when the type has surfaces *a* and *b*, Figs. 2 and 3, at different levels. The higher surface *a* is operative whether the key be struck lightly or heavily, while the surface *b* is only operative in the latter case. A thickening of the line is produced when the projection *c* on the type, Figs. 4 to 7, whose top is the surface *a*, is conical, so that the operative part is broader when the key is struck heavily than when struck lightly. By similar means three symbols may be produced by the same type; but this is rarely convenient.

What I claim is—

Type having duplex printing-faces namely an upper face which alone prints when the type is lightly impressed and a lower face which produces an impression in conjunction with that of the upper face when the type is more heavily printed.

WILLIAM LITCHFIELD.

Witnesses:

GERALD F. BIRD,
CHARLES HALE.