

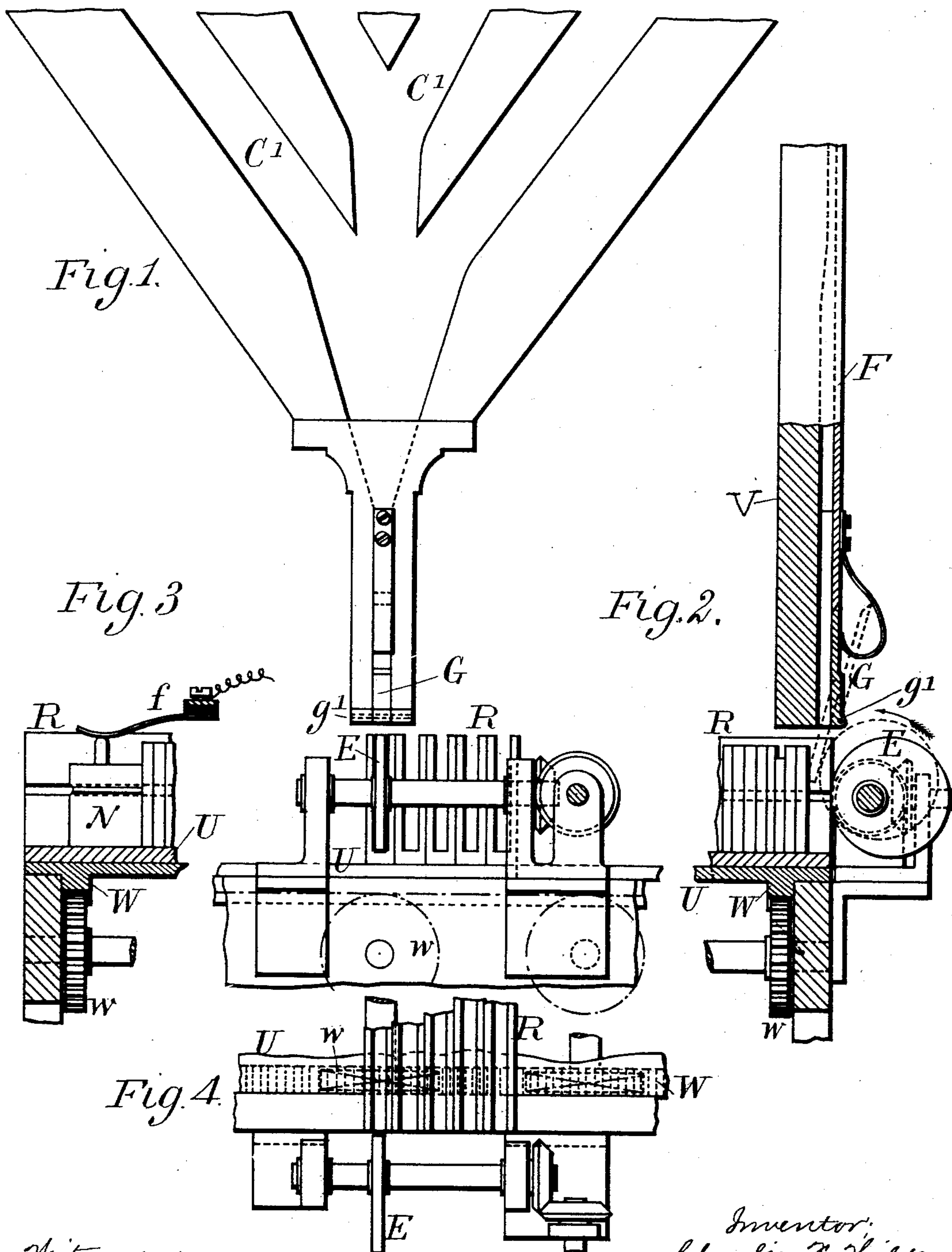
(No Model.)

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C. F. HILDER.  
TYPE SETTING MACHINE.

No. 520,311.

Patented May 22, 1894.



Witnesses;  
G. H. Rea.  
Thos. A. Green

Inventor:  
Charles F. Hilder  
By James L. Norris  
Atty.

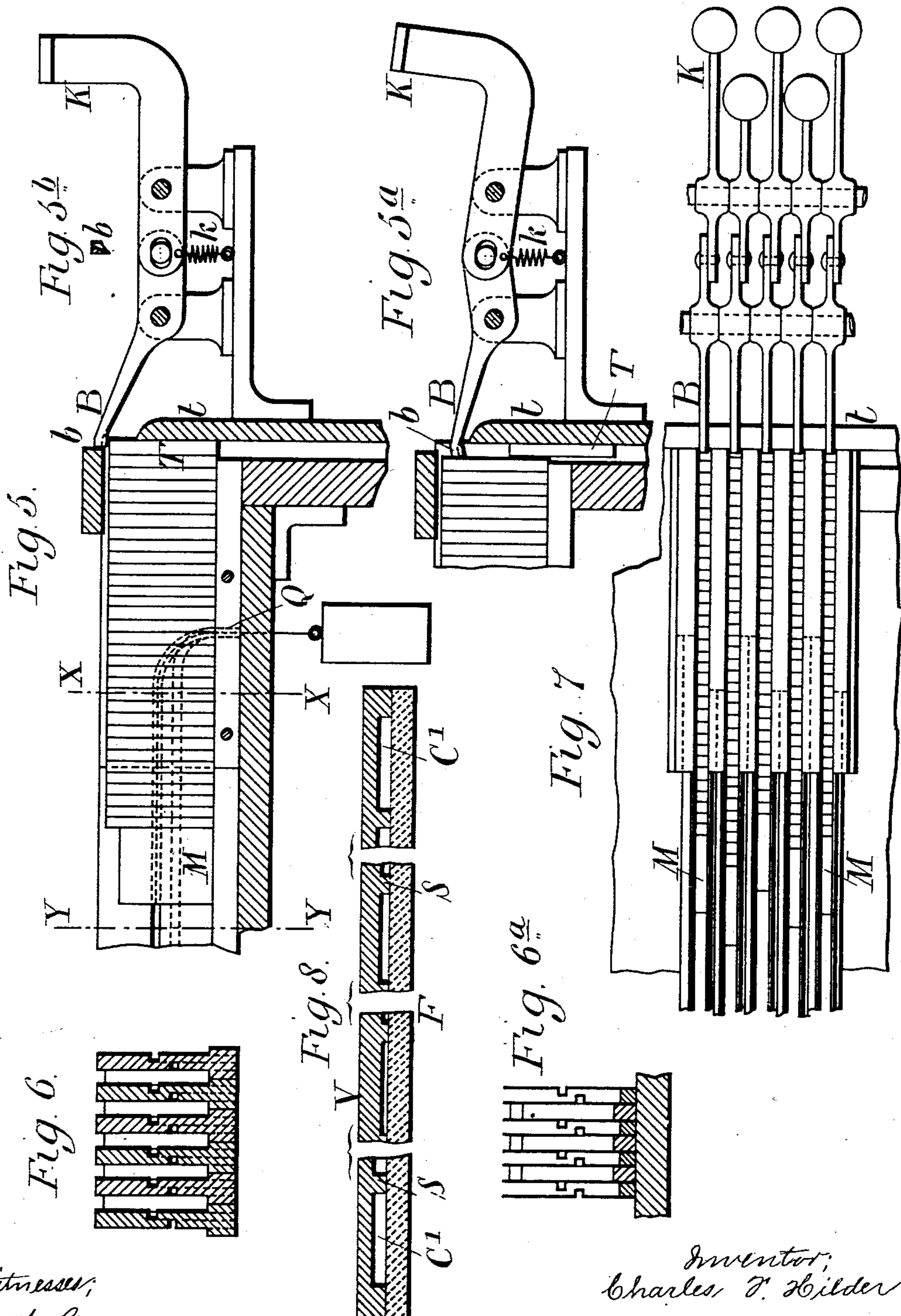
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# UNITED STATES PATENT OFFICE.

CHARLES FREDERICK HILDER, OF LONDON, ENGLAND.

## TYPE-SETTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 520,311, dated May 22, 1894.

Application filed July 24, 1893. Serial No. 481,302. (No model.) Patented in England July 25, 1892, No. 13,524; in France July 21, 1893, No. 231,674, and in Belgium July 21, 1893, No. 105,664.

*To all whom it may concern:*

Be it known that I, CHARLES FREDERICK HILDER, a citizen of England, residing at 28 Gray's Inn Chambers, Holborn, London, England, have invented certain new and useful Improvements in Machinery for Composing Types Used in Letter-Press Printing, (for which I have obtained Letters Patent in Great Britain, dated July 25, 1892, No. 13,524; in France, dated July 21, 1893, No. 231,674, and in Belgium, dated July 21, 1893, No. 105,664,) of which the following is a specification.

This invention relates to machinery for the composition of types, used for letter press printing, which have been previously distributed in an upright position into their several compartments, as described in the specification accompanying my application of even date herewith.

I shall describe composing machinery according to my invention referring to the accompanying drawings.

Figure 1 is a broken detail elevation of a portion of the machine for composing types. Fig. 2 is a vertical sectional view of the same. Fig. 3 is a detail view showing electrical contact devices for indicating when a type receptacle is full. Fig. 4 is a broken plan view. Fig. 5 is a detail longitudinal sectional view. Fig. 5<sup>a</sup> is a similar view, showing the position of a slotter as a type is delivered. Fig. 5<sup>b</sup> is a detail end view of the nose of the slotter. Fig. 6 is a sectional view taken on the line X—X, Fig. 5. Fig. 6<sup>a</sup> is a sectional view taken on the line Y—Y Fig. 5. Fig. 7 is a broken plan view showing several type receptacles and slotters; and Fig. 8 is a horizontal sectional view of the channels through which the types descend to the assembling receptacles.

In the drawings the letters C' indicate channels, which, in practice, lead from a type-magazine or compartments containing the types. The channels are preferably constructed of a front plate F, and a back plate V, which is V-shaped and placed in a vertical position. The inner face of the back plate is provided with stops S, Fig. 8, running perpendicularly, and so arranged that the width between them is less than that of the height of the type being composed. The channels

all communicate at their lower ends with a single perpendicular aperture A. The width of the stops S as measured between the back and front plates is (as shown in Fig. 8) a little greater than that of the type to be delivered down the channels—so that when the front plate F which is similarly shaped to the back plate V is closed against the sides of the stops S, there is a free passage way down for the types, but it is not sufficiently wide to allow of a type turning on its center when falling toward the aperture A while, as the distance between the stops in a lateral direction is less than that of the height of the type it is impossible for them to turn over in a vertical direction. These important ends, therefore are obtained in a simple manner viz: that any and each of the several types admitted to these channels has free passage to the aperture A into which it is intended to fall and must enter such aperture in the same position relatively to itself as that in which it stood in the compartment C from which it had been removed.

The front plate F may be constructed of glass, in order that the interior may be open to inspection and so arranged that it may be readily and easily opened for the purpose of being cleaned or repaired, or for the removal of any impediment.

It is convenient to arrange the compartments and channels for the thinner types in the middle of the V plate, and those for the thicker type at each side, as shown in Fig. 8.

In front of that end of each compartment C which is above the top of the channel for descent of the pipes from it, a slotter B is arranged which, when a key K connected to it is depressed, let the end type T descend into the channel down which it falls to the aperture A at the bottom. The slotter B is so constructed that, on being depressed and moved by depressing the key K connected to it, its nose b of which Fig. 5<sup>b</sup> is an end view, performs a double function, first, the narrow edge formed at one side of the nose bears, not on the character of the type, but on the shoulder formed by the margin of metal at the side of the character, and so to say slices off the foremost type downward; secondly the slotter being pivoted below the point reached



by its nose in its down stroke,—the nose *b* of the slotter as it moves down in its circular path bears against the succeeding type, and so relieves the type which it is pushing down from the pressure of the types behind it, as shown in Fig. 5<sup>a</sup>, the type thus released dropping into the channel below. When, on releasing the key *K*, the nose of the slotter rises in obedience to the spring *k*, it allows the whole column of types in the compartment to advance until the foremost is pressed against the stop *t* in which position it is frictionally held until a subsequent action of the slotter pushes it down and releases it. The forward movement of the column of types is effected in the following manner:—Behind the column there is a sliding follower *M* having passed round its end a loop of thread, the two lines of which run along grooves formed in the sides of the compartments and down grooves in a stationary quadrant *Q* near the front end to a weight. This weight straining the thread causes the follower *M* to advance and push forward the column of type when the foremost type is removed. The grooves for the thread are at different levels so as to avoid weakening the partitions between the compartments, which partitions may consequently be thin so as to allow of the compartments being closely packed together. I prefer to make in one piece and fix immovably a few inches of the front part of the compartments, in which part the stationary grooved quadrant *Q* is arranged, the compartments behind being separate and removable as shown in section in Fig. 6<sup>a</sup>, those compartments being removed to the distributing machine when they are to be filled. By passing the follower threads or cords over the quadrants I am enabled to arrange the type cases much nearer together side by side than where pulleys are employed for the follower cords or threads. As the quadrants are formed in a fixed piece I insure the same distance between them and the ejecting point, and the friction over the quadrants serve as a brake, which prevents too sudden advance of the row of types.

The receptacle *R* which receives the types is arranged immediately under the aperture *A*, and it holds the line of composed types as in a long composing stick, a sliding piece *N* being placed in the receptacle to prevent the type from falling forward when delivered into it; by means of an eccentric *E* continually revolving the line of type is, as each falls into the receptacle pushed forward such a distance as enables the next type which falls to take up its proper position.

In order that a type when caught by the eccentric *E* in the act of dropping may not be broken, I provide the front portion of the lower end of the aperture *A* with a spring-pressed door *G* hinged at its lower end as at *g'*, in such manner that the door can yield, as indicated by dotted lines Fig. 2, and thus allow the type to assume an inclined position,

so that the continuously rotating eccentric engages the type and forces it downward and into the receptacle *R*.

The receptacles *R* from which the type is justified into lines may be of considerable number. As one is filled with type, a signal is given to the operator, and the next receptacle is brought into position. For this purpose, I may place a number of these receptacles *R* side by side upon a base *V* having on its under side a pair of racks *W* gearing with pinions *w* by partially turning one of which, when one of the receptacles *R* is filled, the next empty receptacle is brought in line with the aperture *A* and eccentric *E*. The sliding piece *N* which keeps the types from falling forward has side ribs running in grooves in the sides of each receptacle and a pin on it, which when the receptacle is quite full, meets a spring *f* and thereby makes an electric contact which, by a bell or other signal, informs the operator that the receptacle is full. He then by turning the pinions *w* one tooth brings the next receptacle into line for receiving types.

Having thus described the nature of my said invention and the best means I know for carrying the same into practical effect, I claim—

1. In a type-composing machine, the combination with a type-assembling receptacle, and a type magazine or holder having a series of descending channels, of a single delivery channel or aperture communicating with the descending channels and provided at the front side of its lower end with a spring-pressed door pivoted at its lower extremity and yielding to allow the type to assume an inclined position as it passes out of the said delivery channel or aperture, and a continuously rotating eccentric located below the spring-pressed door and acting to move the type downward from said door and push it into the assembling receptacle, substantially as described.

2. In a type-composing machine, in combination with each type compartment, a finger key, and a spring slotter having its nose shaped with a narrow edge at one side and having the pivot on which it turns situated below the point which the nose reaches at the extreme of its down stroke, substantially as and for the purpose set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 7th day of July, A. D. 1893.

CHARLES FREDERICK HILDER.

Witnesses:

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