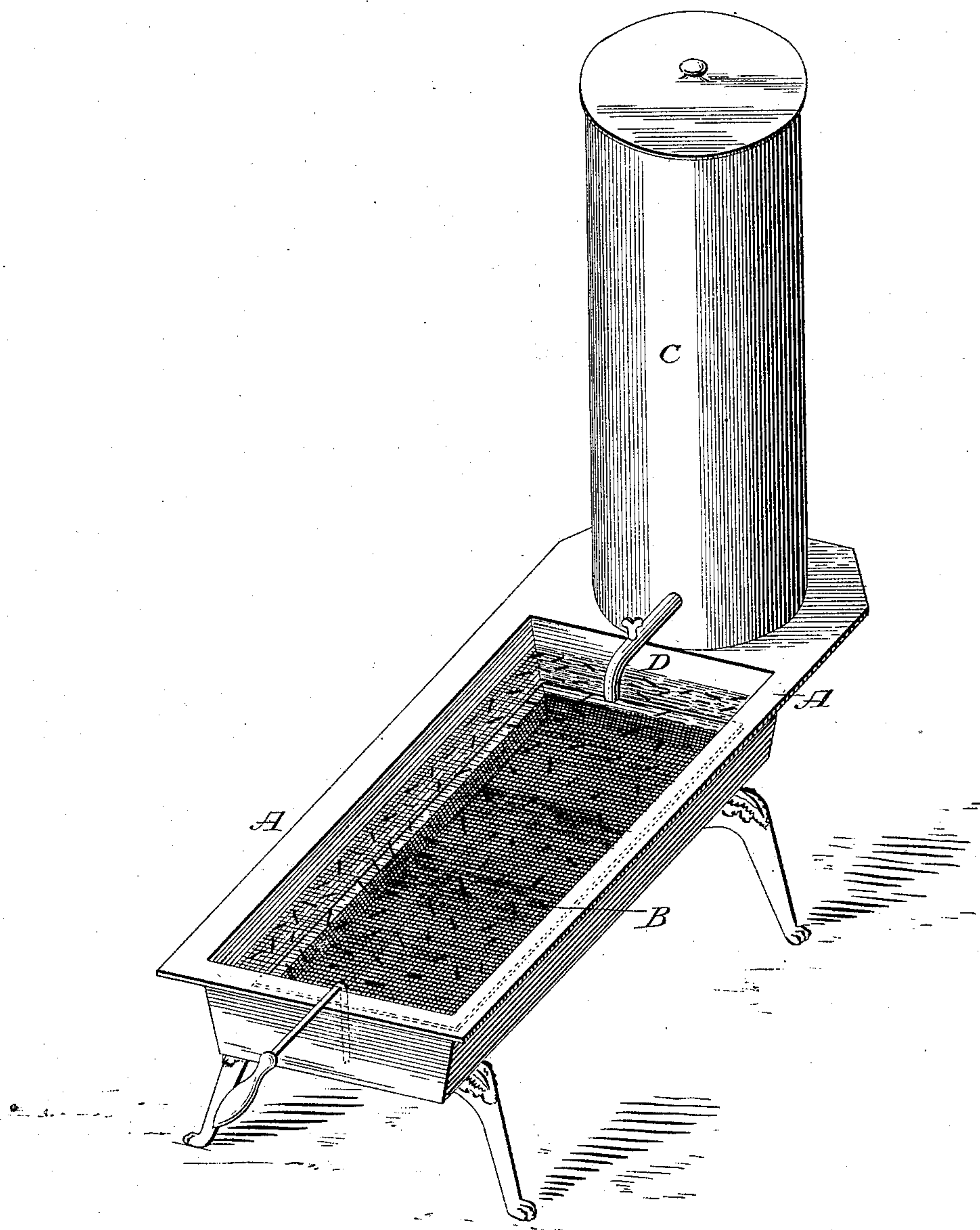


(No Model.)

R. H. DAVIES.
DISTRIBUTING PRINTING TYPE.

No. 283,762.

Patented Aug. 28, 1883.



Witnesses:

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DISTRIBUTING PRINTING-TYPE.

SPECIFICATION forming part of Letters Patent No. 283,762, dated August 28, 1883.

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To all whom it may concern:

Be it known that I, ROBERT H. DAVIES, residing at Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented a certain new and useful Process or Method for Distributing Printing-Type; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to apply and use the same.

Heretofore printing-type have been distributed singly, the workman taking a "handful" of "matter" or type from the form after use on the press, or for a stereotype. He separates the type letter by letter by a deft movement of the muscles of the thumb and forefinger, and gives each type a throw into its particular box until the handful of type or matter is thus distributed and each type placed in the box where it belongs.

The object of my invention is to separate and distribute the type by a short and simple process, first separating all the a's from all the other letters, when they can be put in the a boxes; then separating the b's from all the remaining letters, which may then be placed in the b boxes; then separating the c's, and so on successively till all the characters in the form are properly separated and distributed. This object is gained by means of an application of the principle of specific gravity, and is based upon the well-known law that if a solid is immersed in a liquid it will either float on the surface or sink to the bottom, according as the specific gravity of the liquid is greater or less than that of the solid.

In the drawing, A is the vat; B is the sieve-like type-receptacle; C is the tank containing the liquid used; and D is the faucet through which the liquid passes into the vat.

To apply this principle in the distribution of printer's type a different specific gravity is given to each character or letter in the series of characters or letters. The a's have a different specific gravity from the b's, the b's from the c's, the c's from the d's, &c., each letter or character increasing or decreasing, as the case may be, in specific gravity from that which precedes or follows it, such increase or decrease being a definite proportion

of the entire difference in specific gravity between the lightest and heaviest. The differential specific gravity of the letters is secured by varying the proportions of the materials entering into the composition of the type, and by substituting different materials of greater or less specific gravity, as may be necessary for procuring the required variations.

The type manufactured in the manner hereinbefore described are made of the material known as "celluloid," or of "aluminium" alloyed with other metals. The liquids used are solutions of the salts of mercury, though many of the well-known solutions of high specific gravity will be found suitable.

When the type made and graduated in this manner as to specific gravity are thrown into a vat or vessel containing a liquid of sufficient specific gravity to bear up the next to the heaviest letters, as the b's, all except the heaviest—say the a's,—will float, while the heaviest, the a's, will sink to the bottom. The a's, (if the type are made in this ratio,) having a greater specific gravity than the liquid, and greater than all the other letters, will sink to the bottom of the vat or vessel, and will thus become separated from all the other letters. For the purpose of removing the type thus separated from the bottom of the vat or vessel of liquid without removing any part of the liquid a sieve-like receptacle is placed at the bottom to receive the type as they descend, and the types which have thus sunk are removed, having first gathered the floating type to one end of the vat simply by removing the sieve-like type-receptacle, and they are then thrown into their proper boxes. Having in this manner removed the heaviest type, as the a's, from the bottom, the specific gravity of the liquid is reduced by adding the requisite proportion, but no more, of a liquid of less specific gravity, when the next heaviest letter, as the b's, will sink to the bottom, but no others. The b's are then removed by removing the type-receptacle, as before. By repeating this process as many times as there are gradations of type or characters—that is, letters, figures, punctuation-marks, and spaces—differently graduated as to specific gravity, all the type, letters, and characters

constituting the "form" of matter are properly, rapidly, and correctly separated from each other and distributed in their respective boxes. This process may be reversed, as follows: The type are dumped or thrown into a liquid of less specific gravity than all except the lightest character or letter, which may be a. The a's will then all float upon the surface, and may be skimmed off separately and removed, while all the other letters or characters will sink immediately and simultaneously to the bottom. The a's being thus removed the specific gravity of the liquid is strengthened by the addition of the proper proportion, and no more, of a liquid having a higher specific gravity, when the next lightest letters or characters, as the b's, will rise to the surface and may be removed. This process may be continued until all the type are properly separated and distributed.

The striking advantages of my invention, and of the process herein described and set forth, are—

First. Absolute correctness in separating the type. As the process of distributing is effected by an absolute law of nature, all of the a's being of the same specific gravity and all the other letters or characters being of a different specific gravity, the separation must of necessity be perfect, and there can be no mixture of the different letters, or "dirty cases," (in the language of printers,) from which the great proportion of bad proofs proceeds.

Second. It is a labor-saving process of great value. With proper mechanical appliances the type in a form may be separated in a few minutes, and a large form—that is, a form with many pounds of type—would be distributed in the same time which the distribution of a small form with a few pounds of type would require. With convenient arrange-

ments for applying the process the separation of each class of letters, as the a's, the b's, &c., might be accomplished in a very short period of time. Probably a half an hour would be the extent of time necessary for distributing the heaviest forms.

Having described my invention with sufficient clearness and completeness to enable any one to make and use the same, what I claim as new, and desire to secure by Letters Patent, is—

1. A font of printer's type made of various degrees of specific gravity, the variation in the specific gravity of the type being a definite proportion of the entire difference between the specific gravity of the type having the least and the type having the greatest specific gravity, substantially as described.

2. A font of printer's type made of various degrees of specific gravity, so that no two characters or spaces in the series of characters and spaces have the same specific gravity, substantially as described.

3. The process of distributing printer's type by means of variable specific gravity, said process consisting in immersing printer's type made of various degrees of specific gravity in a liquid, and then varying the specific gravity of the liquid in the ratio of the variations in the specific gravity of the type as many times as there are characters and spaces in the series of characters and spaces to be distributed until, sort by sort, each of the characters and spaces in the series of characters and spaces is separated from each and every other character and space, substantially as described.

ROBERT H. DAVIES.

Witnesses:

R. B. LANE,
FRANK L. LAWTON.