2 Sheets—Sheet 1.

W. S. SHIPLEY.

TYPE SETTING MACHINE.

No. 110,077. Patented Dec. 13, 1870.

Fig. 1.

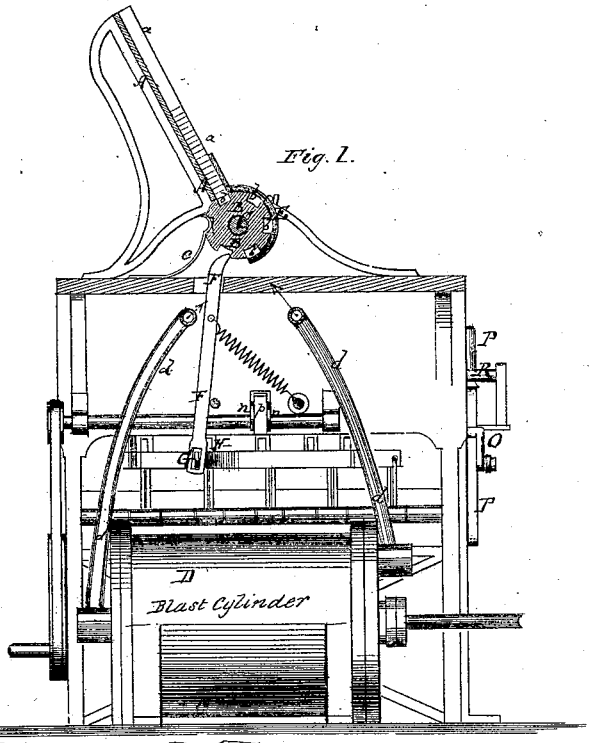
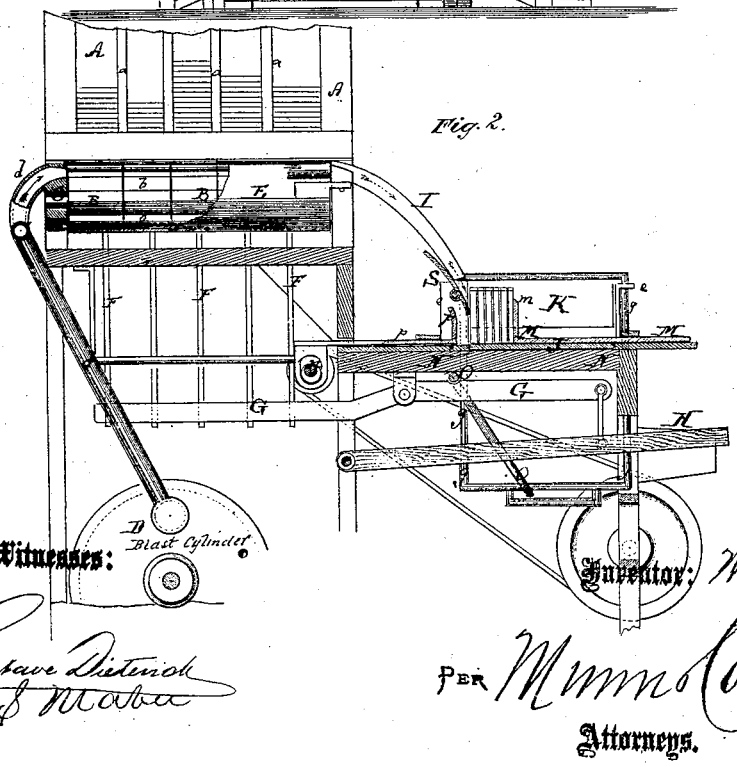


Fig. 2.



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2 Sheets—Sheet 2.

W. S. SHIPLEY.

TYPE SETTING MACHINE.

No. 110,077. Patented Dec. 13, 1870.

Fig. 3.

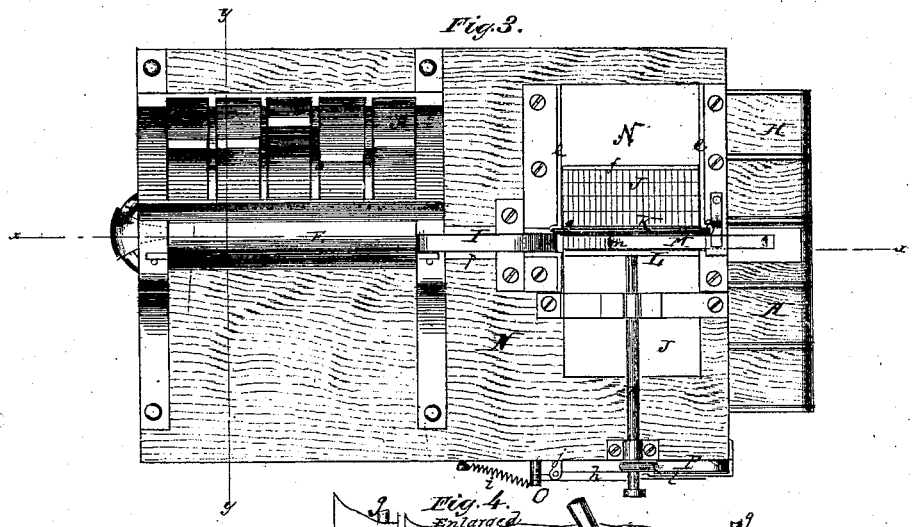


Fig. 4. Enlarged.

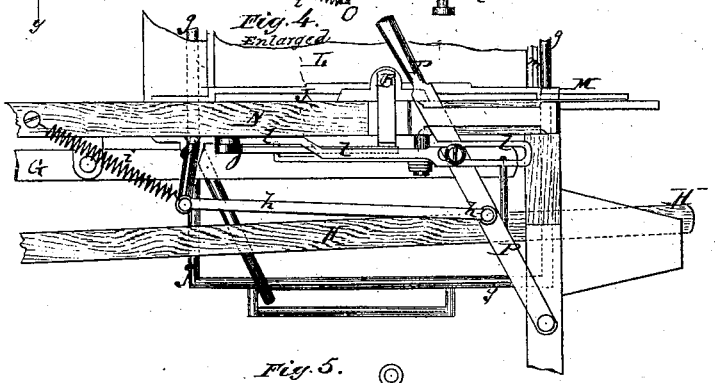
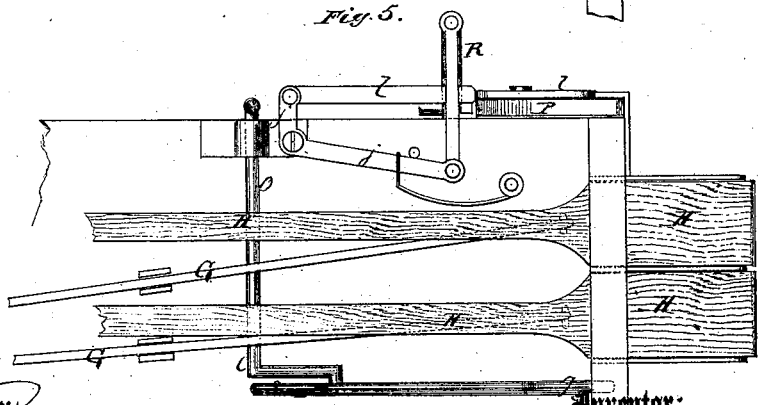


Fig. 5.



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United States Patent Office.

WILLIAM STEPHENSON SHIPLEY, OF JERSEY CITY, NEW JERSEY.

Letters Patent No. 110,077, dated December 13, 1870.

IMPROVEMENT IN TYPE-SETTING MACHINES.

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, WILLIAM STEPHENSON SHIPLEY, of Jersey City, in the county of Hudson and State of New Jersey, have invented a new and improved Type-setting Machine; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawing forming part of this specification.

Figure 1 represents a vertical transverse section of my improved type-setting machine, the plane of section being indicated by the line *y y* of fig. 3.

Figure 2 is a vertical longitudinal section of the same, taken on the plane of the line *x x*, fig. 3.

Figure 3 is a plan or top view of the same.

Figure 4 is a detail side view, on an enlarged scale, of the mechanism for operating the vertical and horizontal slides.

Figure 5 is an inverted plan view of the same.

Similar letters of reference indicate corresponding parts.

The invention relates to machines for setting types into rows or columns for the printing-press, and consists in certain improvements which will be first described in connection with all that may be necessary to a full understanding thereof, and then clearly specified in the summary or claim.

A in the drawing represents the type-holder, consisting of an inclined table, which is, by means of ribs, *a a*, divided into a number of parallel vertical compartments for the several letters and characters.

The bottom of each compartment is formed by a cylindrical block, B, the several blocks being all hung loose upon a common fixed axle, C, as indicated in fig. 1.

Each block B has six (more or less) longitudinal grooves, *b b'*, and each is held with a groove under its type compartment by means of a spring, *c*.

The springs *c c* serve, also, to hold the grooves of all the blocks B in line with each other, so that the said grooves form continuous channels throughout the entire row of blocks B.

One such continuous groove is constantly under the type compartments.

The next is in line with an air-conduit, *d*, through which air is forced from a suitable pump or engine, D, into the said groove.

The air-channel is closed by a shield, E.

Each block B is, by means of a spring-pawl, F, and lever G, or other equivalent mechanism, connected with a key, H, on a suitable key-board.

By pressing upon a key, H, the cylinder connected with the same will be turned to bring the type that was in its upper groove to the air-channel, where such type is exposed to the blast and blown into the form.

In each compartment of the type-holder the types lie flat upon each other, as indicated in fig. 2.

The depth of each groove *b* is equal to the thickness of one type, and thus whenever a block is turned but one type will be carried along.

From the air-channel which is formed by the grooves of the blocks B the type is forced into a tube, I, which is bent downwardly, as in fig. 2, to discharge the type in a vertical position into the form.

The form for receiving the type consists of four movable parts, J, K, L, and M.

J is the bottom plate of the form, resting upon a table, N, and guided between two parallel vertical plates, *e e*, which are firmly secured to the said table.

The outer end of the plate J is turned up to form a vertical plate, *f*, between the two pieces *e*, as shown.

K is a vertical plate secured to upright bars *g g*, which are connected into a frame that can be moved up or down, at will, by means of an oscillating crank-shaft, O.

This crank-shaft is, by means of a rod, *h*, connected with a lever, P, and also with a spring, *i*.

The springs hold the crank in such position that the plate K is drawn down upon the plate J.

By moving the lever P the plate K can be elevated.

L is a sliding follower, placed upon the plate J parallel to K, and at such a distance from the same that a space equal to the width of one type is left between them.

This follower is attached to a bar, R, which is, by means of a bell-crank, *j*, and slotted rod *l*, also connected with the lever P.

Thus, by moving said lever, the plate K will be raised and the follower L at the same time moved forward.

M is a narrow transverse slide, placed between the plates K and L upon the plate J, and provided with an upward-projecting ear, *m*.

The type falls in an upright position from the tube I into the space between the three plates K, J, and M.

A swinging arm, S, pivoted to ears that project from the table, and agitated by a reciprocating slide, *p*, and rotary cam *n*, serves to push the type as they arrive from the tube I ahead against the ear *m*, and to move the slide M forward with the same.

When an entire row of types or characters is held between the plates K L the lever P is moved to raise K, and to move, by means of the follower L, the row of types between the plates *e*, so that the said row will, after the plate K is again lowered, be held between the plates *f* and K, as shown in fig. 3.

When another row of types has been set up be-

tween the plates K and L the operation of the lever P is repeated, moving the new row, together with the former and with the plate J, ahead.

In this manner the operation is carried on until the plate J has been filled, when the composition is removed on the plate J and another empty plate put in its place.

Having thus described my invention,

I claim as new and desire to secure by Letters Patent—

1. The type-setting machine, provided with air-channels, so that the types or characters are moved by means of air-channels, as set forth.

2. The cylindrical-grooved blocks B, applied under the type-holders A, to receive the types in their grooves and to form air-channels, as set forth.

3. The curved tube I, applied to the cylindrical type-holders B, to constitute a continuation of the air-channel formed by their grooves, as set forth.

4. The combination of the grooved cylindrical blocks B with the keys H, so that they will be moved to convey the type from the holder A to the air-channel, as set forth.

5. The pivoted plate S that is moved by the cam *n*, substantially as described, for the purpose of setting up the types in rows, as set forth.

6. The combination of the lever P and rods *l h* with the bell-crank *j* and crank-shaft O, and with the plates L and K, substantially as herein shown and described.

WILLIAM STEPHENSON SHIPLEY.

Witnesses:

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GEORGE W. MABEE.