

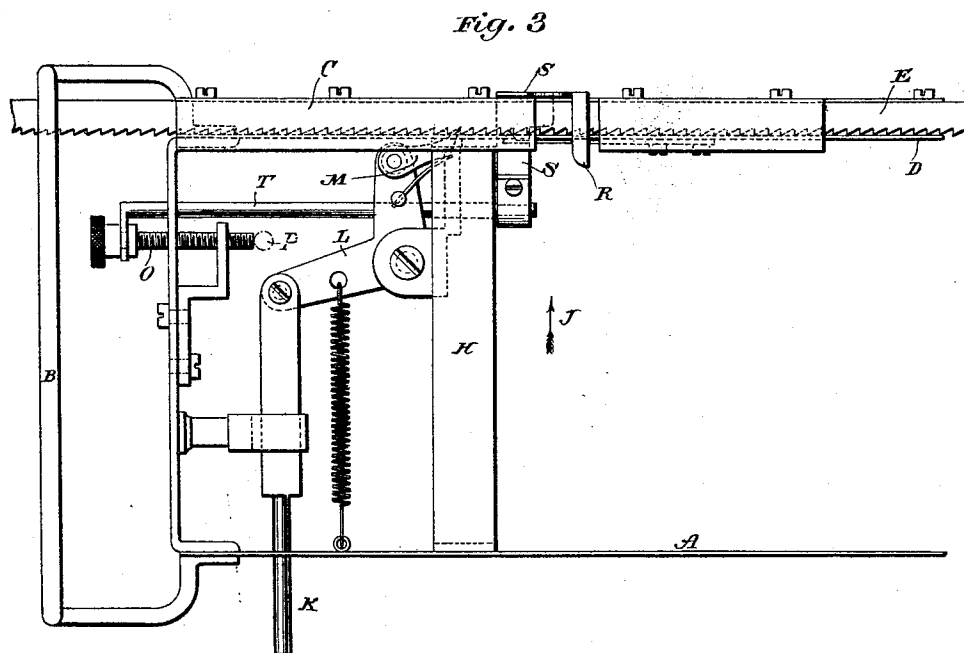
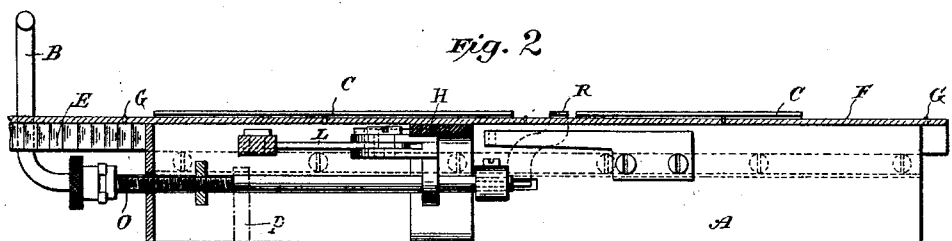
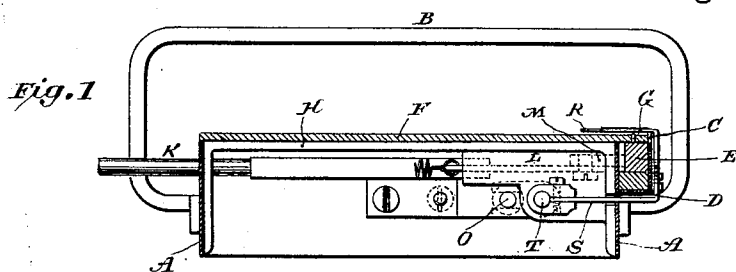
(No Model.)

S. C. BECKWITH & W. W. STREET.

MATRIX MAKING MACHINE.

No. 480,361

Patented Aug. 9, 1892.



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# UNITED STATES PATENT OFFICE.

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## MATRIX-MAKING MACHINE.

SPECIFICATION forming part of Letters Patent No. 480,361, dated August 9, 1892.

Application filed November 7, 1890. Renewed July 5, 1892. Serial No. 438,925. (No model.)

*To all whom it may concern:*

Be it known that we, SHERWIN C. BECKWITH, residing at New York, in the county and State of New York, and WILLOUGHBY W. STREET, residing at Springfield, in the county of Hampden and State of Massachusetts, citizens of the United States, have invented certain new and useful Improvements in Matrix-Making Machines, of which the following is a specification, reference being had to the drawings accompanying and forming a part of the same.

This invention is an improvement in apparatus used in the art of making stereotype-matrices by successively impressing types or dies into a yielding substance, such as card-board. Machines of this general character are now well known, and for purposes of this case a very general description of the main features of a particular machine—that known in the art as the “Goodson matrix-making machine”—will suffice to an understanding of the nature of the invention.

This machine has a carrier in which are a number of dies or type that are brought successively over a given point and impressed into the matrix material. The latter is carried on a bed or frame, which is moved in two directions as the impressions are made. First, it is fed step by step through a certain number of space-units as each character is impressed or space thrown in to make up the lines; secondly, it is moved through predetermined spaces at right angles to the feed to space the lines. The carriage is made up of two separable parts. The main portion is permanently built in the machine, and, being connected with the character-feeding devices only, has but a single to-and-fro movement to form the lines. The other part of the carriage, or that which carries the matrix material, is arranged to be slid into and out of engagement with the main portion and moves with it; but the paper or part to which it is attached is capable of an independent feed movement, so as to space for lines.

We refer now to the drawings in explanation of the improvements which we have made and applied to this part of the mechanism of a matrix-machine.

Figure 1 is a vertical cross-section of the

detachable portion of the carriage that carries the matrix-board. Fig. 2 is a longitudinal section, and Fig. 3 is a top plan view of the same.

A A are the sides of a rectangular frame that is adapted to be fitted into suitable guides in the main carriage of a machine such as is described above. This frame is provided with a handle B, by which it is removed or inserted. To one edge of the frame is secured or cast a narrow plate or flange C, beneath which is a guide or way D.

E is a rack-bar that slides in the guide D under the flange C. To this rack the edge of the card-board F, in which the impressions are received, is secured by pressing the said card-board down on the rack and forcing up through it pins G G, set in the rack. The card-board or matrix material is moved by this rack under the flange C and over an anvil H, which latter receives the force of the impact of the dies. It will be observed that by the successive impression of the characters the frame A, and with it the matrix, is moved or fed by the main carriage in the direction of the arrow J to space the lines. When a line is completed, the main carriage is drawn back to begin a new one, and this movement brings the end of a sliding rod K against a fixed point of resistance on the bed of the machine. This rod turns a bell-crank lever L, that carries a pawl M, engaging with the rack-bar, and feeds the paper through the space required for the next line.

For ordinary print, but more especially for newspaper print, where types of various sizes are used, all the different kinds of type conform to certain standards both in width and height. The terms “nonpareil,” “bourgeois,” “agate,” “pica,” and the like, for example, designate type each of a certain number of units of a standard scale in height. To adapt the machine, therefore, to different sizes of type, a number of rack-bars are provided, the teeth of which are cut in conformity with this unit system. These racks are made interchangeable and have pins G exactly in the same positions, so that a matrix-board may be taken from one rack and put on another having teeth of the same size without effect,

the position of the lines being in either case exactly the same; but if it be desired to transfer a matrix-board from one rack to another having teeth of less or greater width this relation no longer exists. For example, if one rack has teeth of seven units and another of five it is evident that very few of the teeth would coincide, so that in changing from one size of type to another the difference in the width of the teeth in the two racks may bring the bottom of line of larger or smaller type too near or too far from the last line of impressions. To remedy this, we make the detachable part of the carriage, or that which carries the matrix-board, adjustable in a direction transverse to the lines or with reference to the impression-point in the machine, whereby in changing from one style of type to another the matrix-board may be set so that the first line of different type will be properly spaced. The adjustment is obtained by means of a screw O, which passes through a part of the carriage composed of the frame A, that carries the rack-bar and matrix material. A fixed stop P is set in the main carriage in a position to form a stop for the screw O. When a rack-bar and its attached matrix sheet or board is slipped into the frame A, it will be held in a position determined by the engagement of the pawl M with one of its teeth; but as this may not bring the last line of impressions to the proper position with reference to the impression-point the screw O is turned to adjust the position of the frame A with reference to the main carriage, so that the next line of impressions will be properly spaced.

The pointer or gage R extends over the matrix-board and has a straight edge that may be brought into line with the bottom of the last row or line of impressions by turning the screw O; but in doing this the matrix-board and its supports are moved relatively to the impression-point, so that the new lines will begin at the proper point, the spacing by the rack being from the bottom line of the last

row of impressions. By means of this attachment matrices are made of all sizes of type properly spaced or lined and presenting as neat and compact appearance as though made from type set one by one by hand.

What we claim is—

1. In a matrix-machine of the kind described, the combination, with a traveling carriage and feed mechanism, of a matrix-material support or carrier adjustable with respect to said carriage in a direction transverse to the lines or rows of impressions, and line-spacing rack-bars having teeth of different widths, as herein set forth.

2. The combination, with the main carriage, of a support or carrier for a matrix-board, a screw set therein, and a stop or fixed point on the main or feed carriage, the said screw being in position to encounter the stop for adjusting the position of the matrix-board with respect to the impression-point and in a direction at right angles to the lines of impression.

3. The combination, with the detachable matrix-support of a machine of the kind described, of a device of the kind described (the screw O) for adjusting the said support with respect to the main carriage in a direction transverse to the lines of impressions, and a pointer or gage movable over the matrix material and connected with the adjusting device, as set forth.

4. The combination, with the frame A, of the adjusting-screw O, the rack bar or bars E, and the pointer or gage R, connected and movable with the screw, as set forth.

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