(No Model.) 2 Sheets—Sheet 1.

M. H. DEMENT.

APPARATUS FOR PUTTING MATRIX STRIPS IN FORM AND PREPARING THEM FOR STEREOTYPING.

No. 307,446. Patented Nov. 4, 1884.

Fig. 1.

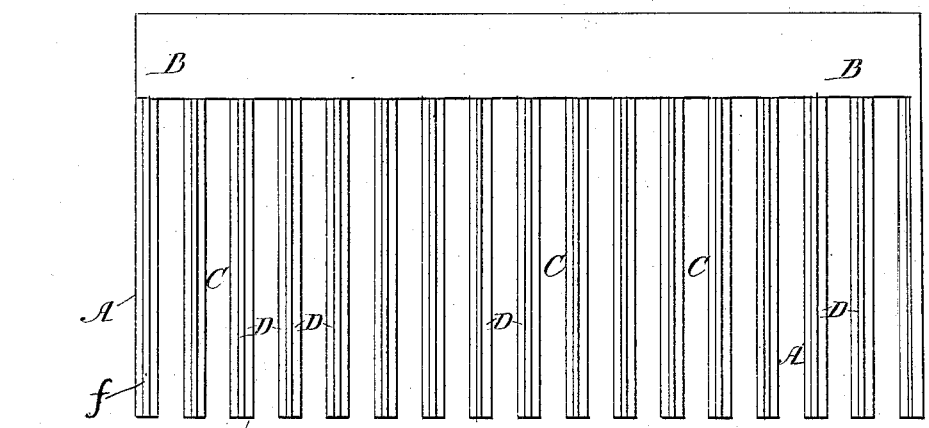


Fig. 2.

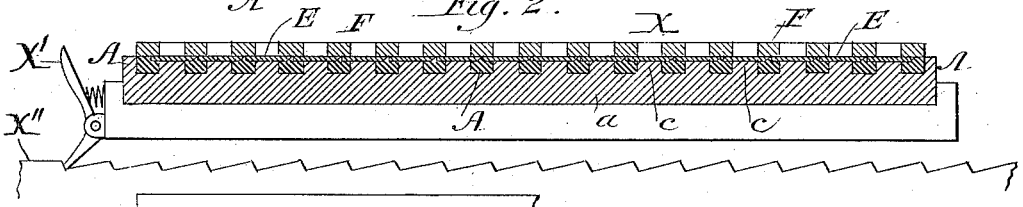


Fig. 3.

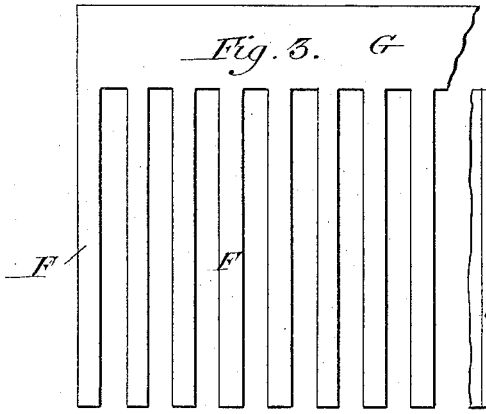


Fig. 4.

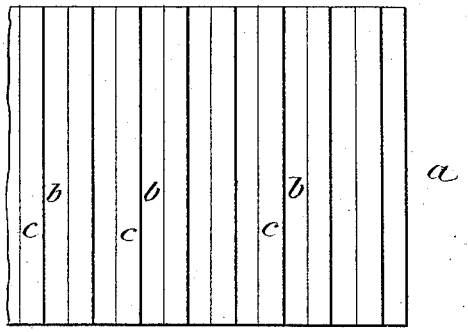
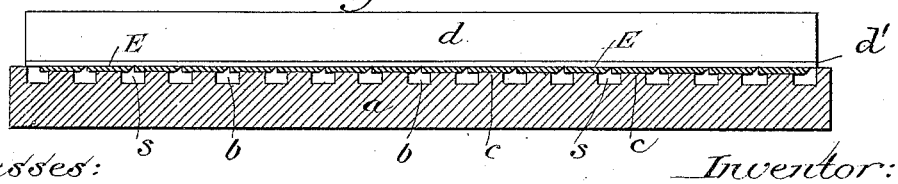


Fig. 5.



Witnesses:

Frank B. Blanchard

Chas. Lane

Inventor:

Merritt H. Dement

(No Model.) 2 Sheets—Sheet 2.

M. H. DEMENT.

APPARATUS FOR PUTTING MATRIX STRIPS IN FORM AND PREPARING THEM FOR STEREOTYPING.

No. 307,446. Patented Nov. 4, 1884.

Fig. 6.

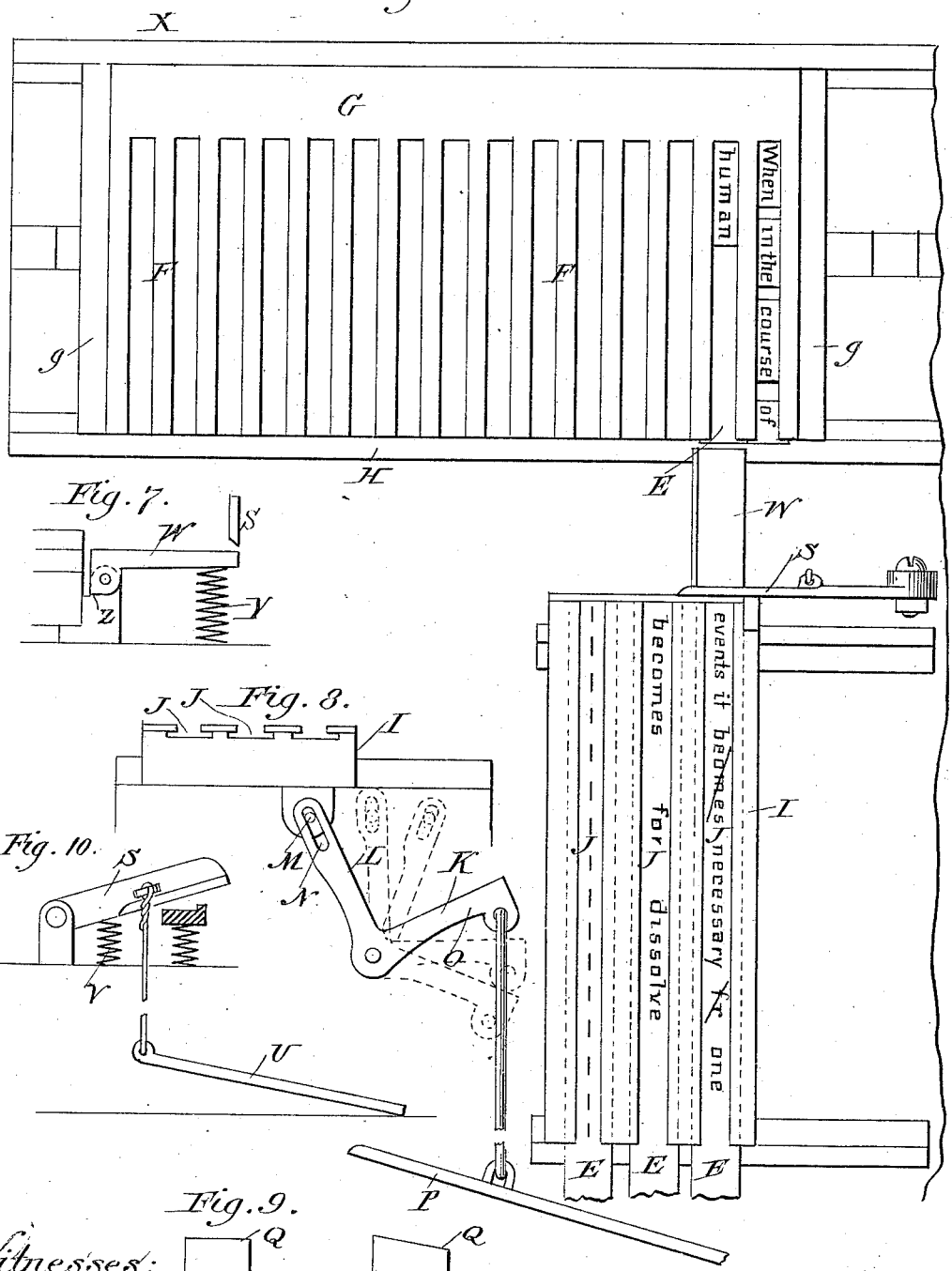
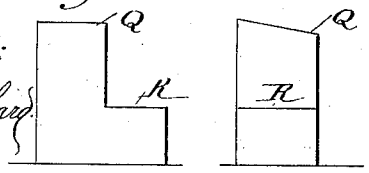


Fig. 7.

Fig. 8.

Fig. 10.

Fig. 9.



Witnesses:
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UNITED STATES PATENT OFFICE.

MERRITT H. DEMENT, OF CHICAGO, ILLINOIS.

APPARATUS FOR PUTTING MATRIX-STRIPS IN FORM AND PREPARING THEM FOR STEREOTYPING.

SPECIFICATION forming part of Letters Patent No. 307,446, dated November 4, 1884.

Application filed November 16, 1883. (No model.)

To all whom it may concern:

Be it known that I, MERRITT H. DEMENT, of the city of Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Apparatuses for Putting Matrix-Strips in Form and Preparing the Same for Stereotyping, which invention is fully set out in the following specification, reference being had to the annexed drawings, which form a part hereof.

My invention relates to the arts of printing and stereotyping; and it consists of an apparatus for holding the matrix-strips in lines while a form is being made, and for holding the completed form while it is being prepared for stereotyping, as hereinafter described, and particularly pointed out in the claims.

The apparatus consists, partly, of a series of bars, A A, of wood or metal, or other suitable substance, of the length of the lines to be formed, and secured at one end to a holder, B B, in such manner as to leave openings C C between their sides. Upon each side of each bar, and in the upper half, a longitudinal groove or inset, D, is formed, for the purpose of receiving the edge of the matrix-strip E, which strip, when in place, will lie between two of the bars A, which act as supports therefor, with the edges overlapping the bars and extending into the grooves or insets D.

To hold the matrix-strips more securely in place while being put in form, a second series of bars or covers, F F, narrower than the first, and secured in like manner to a support, G, is laid over the first series, each bar covering the lower edge of one strip and the upper edge of the next strip in such manner as to hold the strips in place and yet leave exposed to view the matrix-lines, in order that the operator may see to arrange them in justified lines.

This apparatus is placed in a carriage, X, which is arranged to slide upward in grooves in the frame H, so as to bring the lines successively in position to receive the matrix-strips, the spring-catch X′ operating in connection with the notched plate X″ to regulate the movement. To the right of the apparatus is placed a plate, I, having three longitudinal grooves, J J J, in or on its upper surface, in which grooves the matrix-strips E E E are run, one groove holding the strip which is being justified, another holding the strip containing corrections to be inserted, and the third holding a strip containing hyphen-matrices to be inserted at the ends of lines where words have been divided. The plate is adapted to be moved upward by means of a bell-crank lever, K, secured to the table, the upper arm, L, connecting with the plate by a pin, M, on the plate, working in a slot, N, in the upper arm of the lever, the horizontal arm O being connected with a pedal, P. Underneath the toe of the pedal is placed a stop, Q, of such height that, as the toe is pressed upon it, the grooved plate will be advanced a sufficient distance to bring the next groove in position to have the strip therein run out and cut. To one side of this stop is placed a second and lower stop, R, so arranged that the operator, by turning the toe of the pedal to one side and depressing it upon the second stop, will advance the third groove in the plate to position. To the left of this plate is placed a knife, S, which operates in connection with the ends of the grooves J as a pair of scissors, to cut the strips in pieces for the purpose of justifying them in lines. The knife is operated by means of a second pedal, U, a spring, V, underneath the knife lifting it to position after operating. To the left of the knife is placed a short grooved plate, W, for receiving the pieces of strip as they are cut off preparatory to being run in the form. One end of the plate is secured to the stationary support H by the pivot Z, and the other end, being the one next the knife, rests upon a spiral spring, Y, so that as the knife descends and cuts the paper the end of the plate will yield sufficiently to permit the complete descent of the knife, the spring operating to lift the end of the plate again to position when the knife is released.

Underneath the bars A A is placed a wooden block, *a*, with transverse grooves *b b*, forming ribs or ridges *c c*, which fit in the openings between the series of bars A A, filling the space between the same level with the bottoms of the insets therein, and serving as a backing to the matrix-strips, and also the additional purpose of holding the strips in position after the removal of the bars. This block need not, how-

ever, be applied until the strips are run in the form, as the bars A A would support the strips.

The operation is as follows: The strip is cut into short pieces suitable for justifying in lines and run in the form. Where errors are marked they are cut out and the corrections inserted. When the form is filled, the upper frame of bars F F is lifted off, exposing the matrix-strips. A plate, *d*, of wood or other suitable surface, which may be faced with a sheet of papier-maché, *d'*, is laid upon the form, which is then reversed, and the two wooden blocks secured together by clamps or other suitable means, the ridges *c c* serving to hold the strips in place. The lower frame of bars A A may then be removed by sliding the bars out at the side. One of the sides of the form as thus made may be inclosed in any suitable manner, and fluid or plastic material applied to the openings in the other side to fill all the open spaces between the lines, if any, and between and at the ends of the strips. This material is allowed to harden or dry, and the form may then be placed in a stereotype-mold and a cast taken therefrom. This filling material may be composed of a variety of substances—such as plaster-of-paris, clay, paste, &c. I find, also, that a compound of lead and metal which melts at a higher temperature may be used to advantage, as it very readily runs into all the small openings, and may be made of such a composition as not to melt at the temperature of the stereotyping metal which forms the cast, and thus will not adhere to or coalesce therewith.

For the purpose of forming solid matter, and hence to avoid the spaces between the lines which would be formed by the tongues *f* between the grooves or insets on the bars A, the tongues are made with one side—preferably the lower side—slanting or beveled to a sharp or nearly sharp edge, and the matrix-strip is cut with one edge—preferably the edge next to the tops of the letters—beveled to correspond with the beveled side of the tongues on the bars, so that as the strips are run in the lines will be close together.

In the annexed drawings, Figure 1 is a plan view of plate B and bars A A; Fig. 3, of a portion of plate G and bars F F, and Fig. 4 of wooden block *a*, with transverse grooves *b b*, forming ridges *c c*. Fig. 2 is a side view of carriage X, wooden block *a*, bars A A and F F, and strips E. Fig. 5 represents the form with carriage and bars A A removed and wooden plate *d*, faced with papier-maché strip *d'*, added. Fig. 6 is a plan view of the apparatus. Fig. 7 is a view of plate W and spring Y. Fig. 8 is an end view of plate I, showing operation of shifting-lever. Fig. 9 is a side view of stops upon which the toe of the pedal is depressed. Fig. 10 is a view of the cutting-knife and the pedal for operating the same.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination of the grooved bars A with the movable covers F, substantially as and for the purposes shown and described.

2. The combination of the bars A, plate G, having bars F, and plate *a*, having transverse ridges *c*, substantially as and for the purposes shown and described.

3. The combination of the bars provided with beveled tongues *f* and the matrix-strip E, provided with a beveled edge, substantially as and for the purposes shown and described.

4. The combination of the plate *d*, strips E, and grooved plate *a*, substantially as and for the purposes shown and described.

5. The combination of the grooved plate I, stops Q and R, and pedal, substantially as and for the purposes shown and described.

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Witnesses:
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