

No. 636,686.

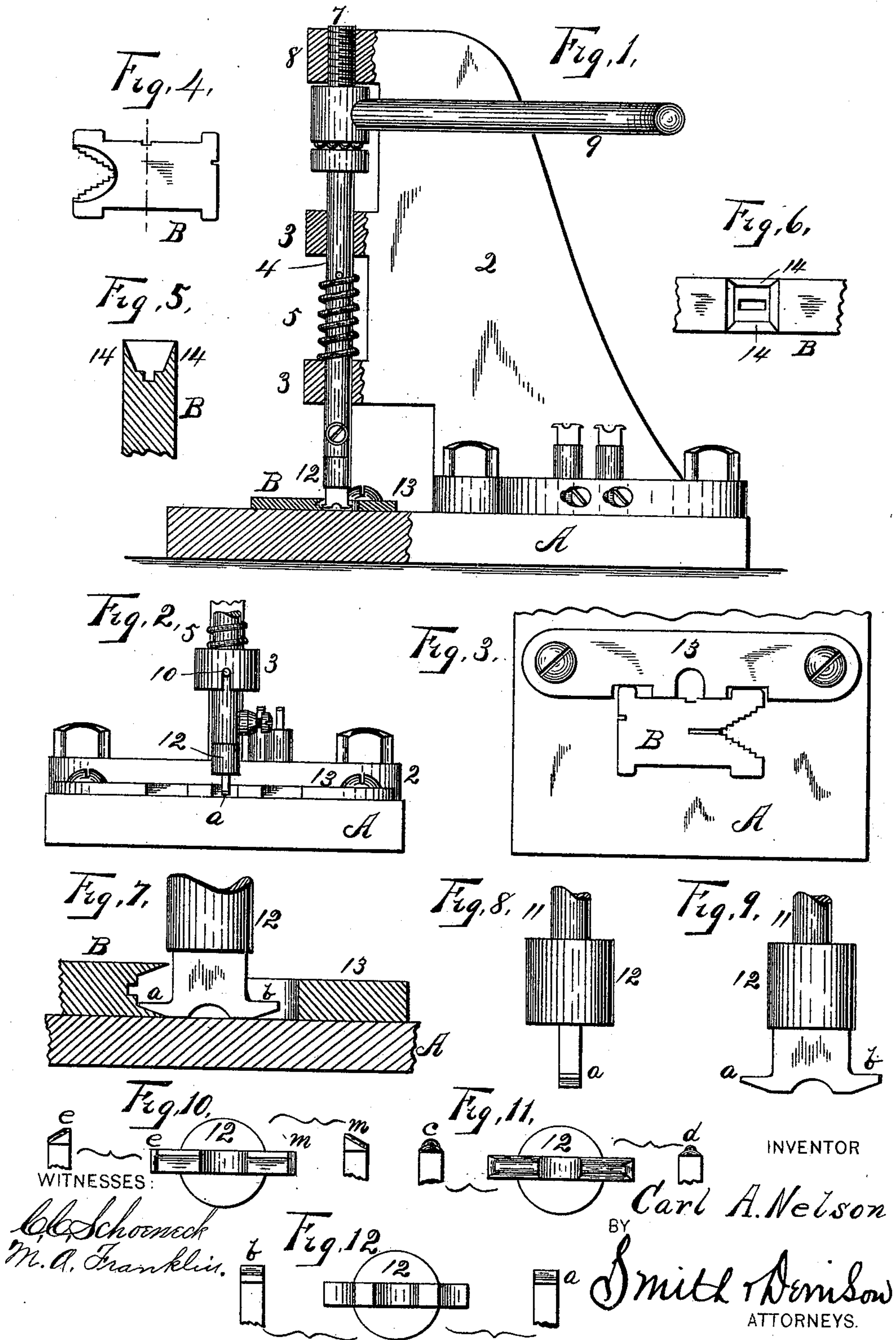
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C. A. NELSON.

APPARATUS FOR STRAIGHTENING LINOTYPE MATRIX DIES.

(Application filed June 10, 1898.)

(No Model.)



WITNESSES:

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CARL A. NELSON, OF BINGHAMTON, NEW YORK.

APPARATUS FOR STRAIGHTENING LINOTYPE MATRIX-DIES.

SPECIFICATION forming part of Letters Patent No. 636,686, dated November 7, 1899.

Application filed June 10, 1898. Serial No. 683,088. (No model.)

To all whom it may concern:

Be it known that I, CARL A. NELSON, of Binghamton, in the county of Broome, in the State of New York, have invented new and useful
5 Improvements in Apparatus for Straightening Linotype Matrix-Dies, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

10 My invention relates to means, devices, and appliances for truing-up or straightening linotype matrix-dies, so that when assembled in line side by side they will fit closely and tightly together, preventing any leakage or
15 flow of the type-metal into the spaces between them, creating objectionable fins and burs upon the slugs or linotypes.

Each die consists of a flat plate having in one edge an intaglio or female letter. This
20 intaglio is surrounded by inwardly beveled or sloping walls or dams which retain the liquid metal and create the shoulders around each letter and also permit the ready withdrawal of the cast type-letter or linotype.
25 These dams, especially those which are in extensions of the sides or meeting faces of the dies, are very light and easily bent inwardly, so that their outer faces will not meet the like
30 faces of the walls of an adjoining die, or outwardly, so that said outer meeting faces of adjoining dies will meet and hold the sides apart, creating uneven spacing of the letters, and in some instances permitting the type-metal to flow between the dies, either creating a bur or fin, which must be removed
35 from the linotype, or in some instances operating as a solder to secure two dies together.

My object is to remedy these and other defects, difficulties, and obstacles, comprising
40 a swaging-die, or rather a set of swaging-dies or shapers, each shaper being adapted to be used in connection with certain letters, signs, symbols, or characters, their form being varied according to the formation of said letters,
45 &c., but all operating separately to swage said dams singly and restore them to their normal shape and condition, suitable means being provided to reciprocate said shapers and to vary the amount of force exerted upon
50 any dam. These dies are usually of brass or other metal, and the expansion of the thin dams by the heat of the molten metal in cast-

ing a linotype causes them to buckle or curve inwardly and to retain any distortion.

It is constructed as follows, reference being 55 had to the accompanying drawings, in which—

Figure 1 is a sectional elevation of a form of press, showing a gage or matrix-guide upon the bed and in position to be operated upon, the several parts being shown of about their 60 normal size. Fig. 2 is a front elevation of the press-bed, gage, and shaper of about their normal size, the upper portion of the press being broken away. Fig. 3 is a top plan of the press-bed, gage, and a die in position, the 65 other parts being omitted. Fig. 4 is a side elevation of a die of substantially normal size. Fig. 5 is a section thereof on the dotted line in Fig. 4 on an enlarged scale. Fig. 6 is a plan view of the die edge on an enlarged scale. 70 Fig. 7 is an enlarged sectional detail of the bed, gage, die, and shaper in operative position. Fig. 8 is an enlarged front elevation of a shaper, part of its shank being broken away. Fig. 9 is a side elevation of the same. Fig. 75 10 is a bottom plan and an elevation of the opposite ends, lips, or shaper-dies of a certain class. Fig. 11 comprises like views of the shaper-dies of another class. Fig. 12 comprises like views of the shaper-dies of the dies 80 shown in Figs. 7, 8, and 9, which are of a different class from those shown in either Figs. 10 or 11.

A is a suitable base upon which a standard 2 is erected, having arms 3, in which a recip- 85 rocating spindle 4 is mounted with a supporting-spring 5, said spindle having a head of suitable construction to form a member of a ball-bearing or other antifriction device, substantially as shown. A rotating presser-shaft 90 7 is suitably mounted in an arm 8 in such manner as to create the other member of a ball-bearing, being rotated by the lever 9 to apply force to or remove it from the spindle. This spindle is guided in its vertical move- 95 ments by a slot and pin 10 and is suitably adapted to receive the stem 11 of the shaper 12. Upon this shaper are suitable lips or die-arms, severally marked *a*, *b*, *c*, *d*, *e*, and *m*, as each of these differs in form from the others 100 and is adapted to be used for a separate and distinct purpose. All of the dies are beveled crosswise, the lips *a* *b* being of unequal thickness, the lips *c* and *d* being also beveled lon-

gitudinally, creating their longitudinal lip-
 faces, the lips *e* and *m* being also rounded to
 create curved faces of unequal width. The
 lip *a* is adapted to be used for matrices of the
 5 capitals "B," "D," "I," "J," "P," "S," and
 "T," small letters "c," "d," "f," "h," "i,"
 "j," "k," "l," "m," "n," "p," "r," and "t,"
 and numerals "1," "2," "4," and "5." The
 lip *b* is used for matrices of the capitals "E,"
 10 "F," "H," "K," "L," "M," "N," and "R,"
 the lip *c* for capitals "B," "P," "R," and "S,"
 small letters "a," "b," "c," "d," "e," "g,"
 "o," "p," "s," "u," and numerals "3," "5,"
 "6," "8," "9," and "0." The lip *d* is used
 15 for matrices of the capitals "C," "D," "G,"
 "O," "Q," and "U." The lips *e* and *m* are
 used for matrices of the capitals "A," "K,"
 "V," and "W," small letters "v," "w," and
 "y," and the numeral "7"—that is to say, the
 20 lips *a* and *b* are straights of two sizes, *c* and
d rounds of two different sizes, and *e* *m* are
 slants of two directions, right and left, where-
 fore the shape of the point, head, or nose of
 each lip is of the proper shape to fit into the
 25 space between the base of each dam and the
 side of the intaglio of a character, sign, or
 symbol, as capitals, small letters, numerals,
 &c. The lips *a* and *b* are also used with sub-
 stantially all of the punctuation-marks, while
 30 the rounds *c* and *d* are used with curved
 brackets or parentheses.

In operation a shaper-lip is set in position,
 raised a little, a matrix *B* laid on one side
 against the guide 13, the nose of the lip en-
 35 tering above the dam 14, and then by operat-
 ing the lever the lip is forced down, and its
 beveled face will swage the dam from the in-
 side into its normal shape and true it up be-

tween the lip and the bed. By this means
 the dam is trued up by the compression of the 40
 metal, and the flat base will prevent too much
 compression and consequent distortion or
 change of thickness of the dam, operating
 solely to restore it to its original or normal
 condition, as it was before it was ever used, 45
 all without in any manner affecting the matrix
 proper or intaglio of the letter or character.

Any suitable style of press may be used, as
 also any equivalent of the screw-thread for
 applying power. 50

For convenience the shaper-lips are shown
 in pairs upon one shank, and when one has
 been used upon its class of characters by
 loosening the set-screw the body can be turned
 to bring the other into position for use. 55

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

The combination with a solid bed having a
 plane surface and a plunger, and means to re- 60
 ciprocate it toward and from said bed, of a
 die removably mounted upon said plunger,
 and comprising a body, and a laterally-pro-
 jecting die-arm, having a slanting working
 face, and adapted to be inserted into the cav- 65
 ity of a linotype matrix-die and separately
 swage the respective dams upon the sides of
 said cavity between the die-arm and said bed
 and upon a line transverse to said cavity.

In witness whereof I have hereunto set my 70
 hand this 31st day of May, 1898.

CARL A. NELSON.

In presence of—

HARTWELL MORSE,
 A. B. BROWN.