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PATENTED JULY 4, 1905.

W. R. SPEECHLEY.
RULE AND LINOTYPE FOR TABULAR MATTER.

APPLICATION FILED MAR. 18, 1905.

2 SHEETS—SHEET 1.

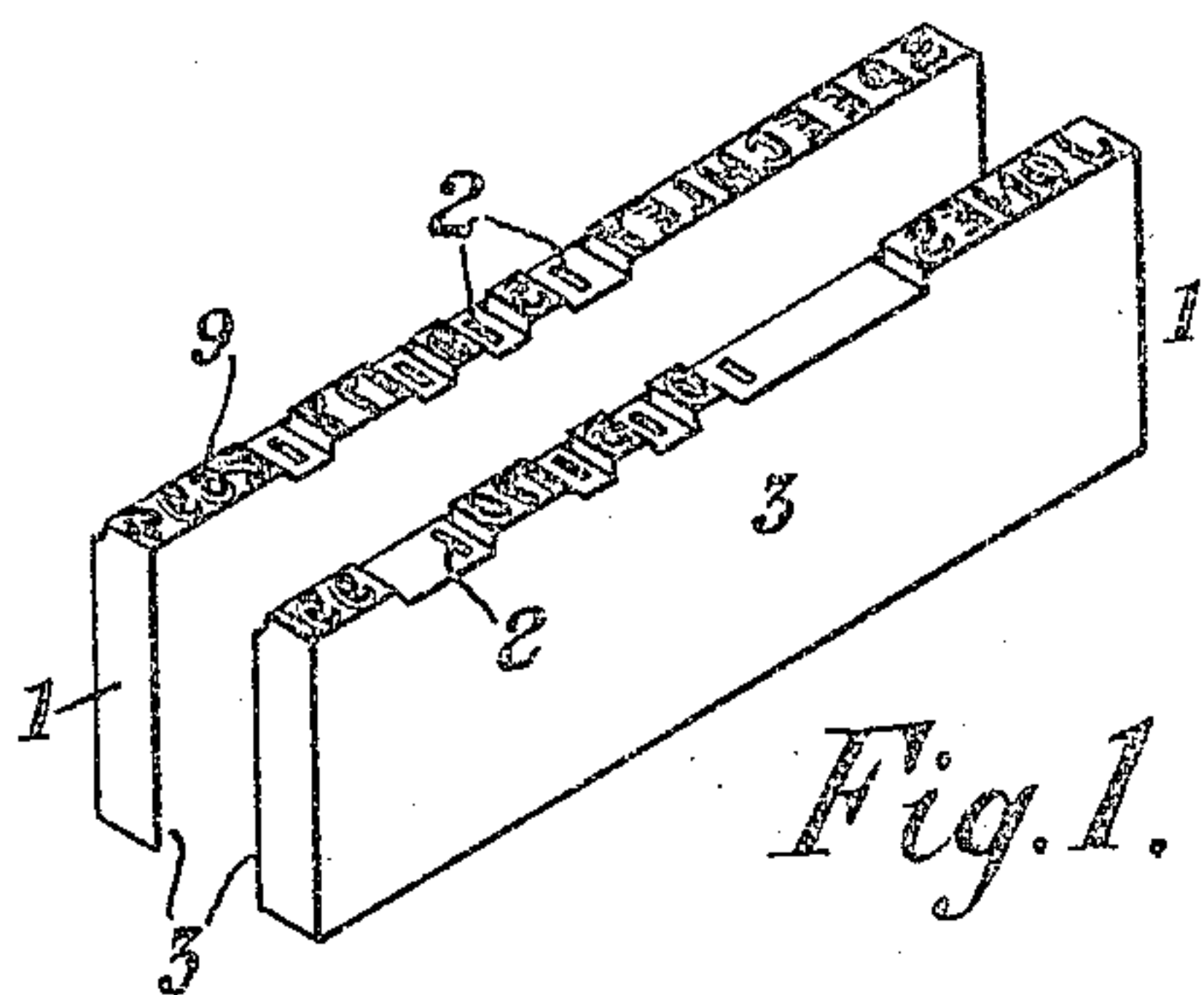


Fig. 1.

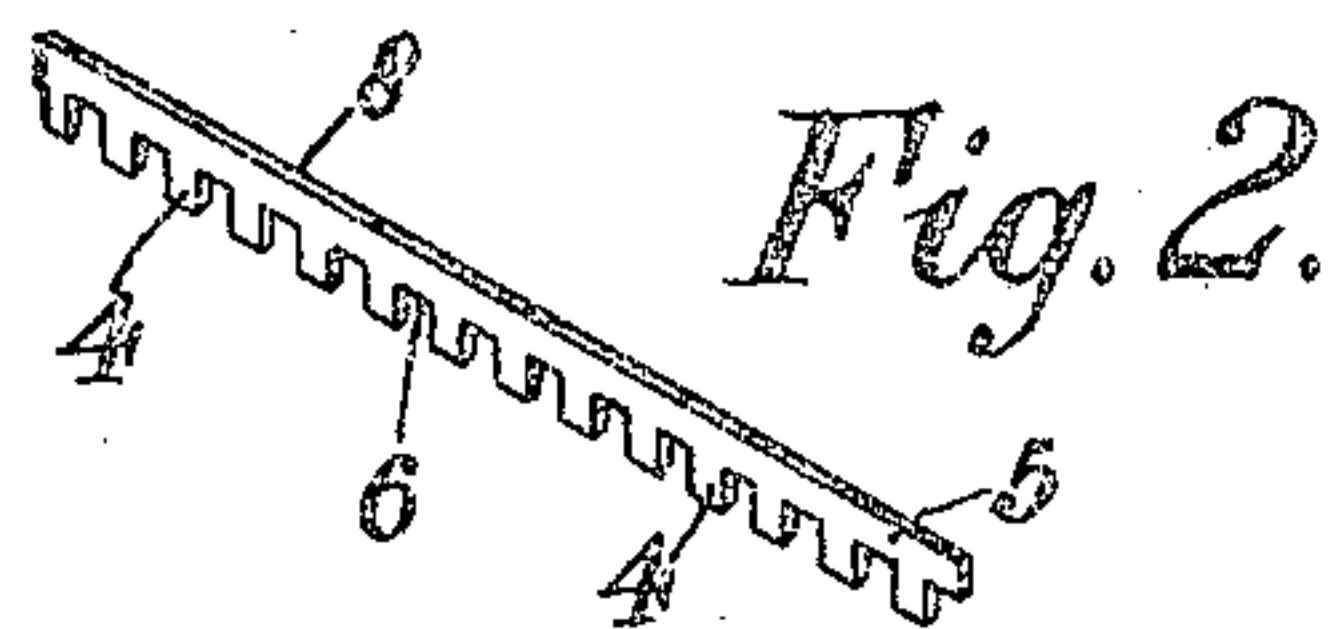


Fig. 2.

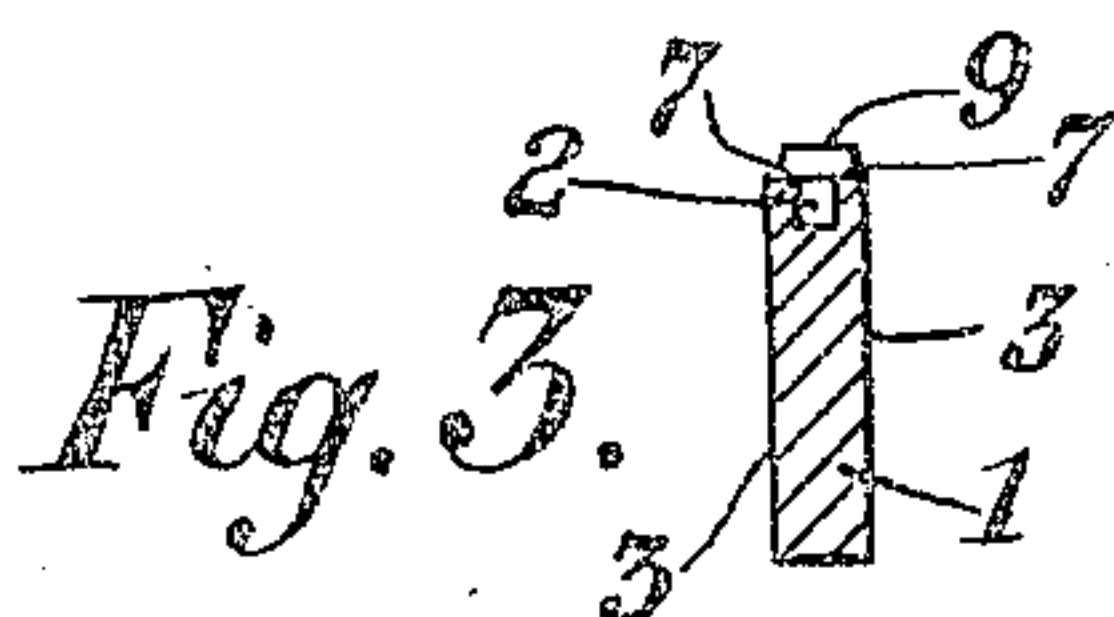


Fig. 3.

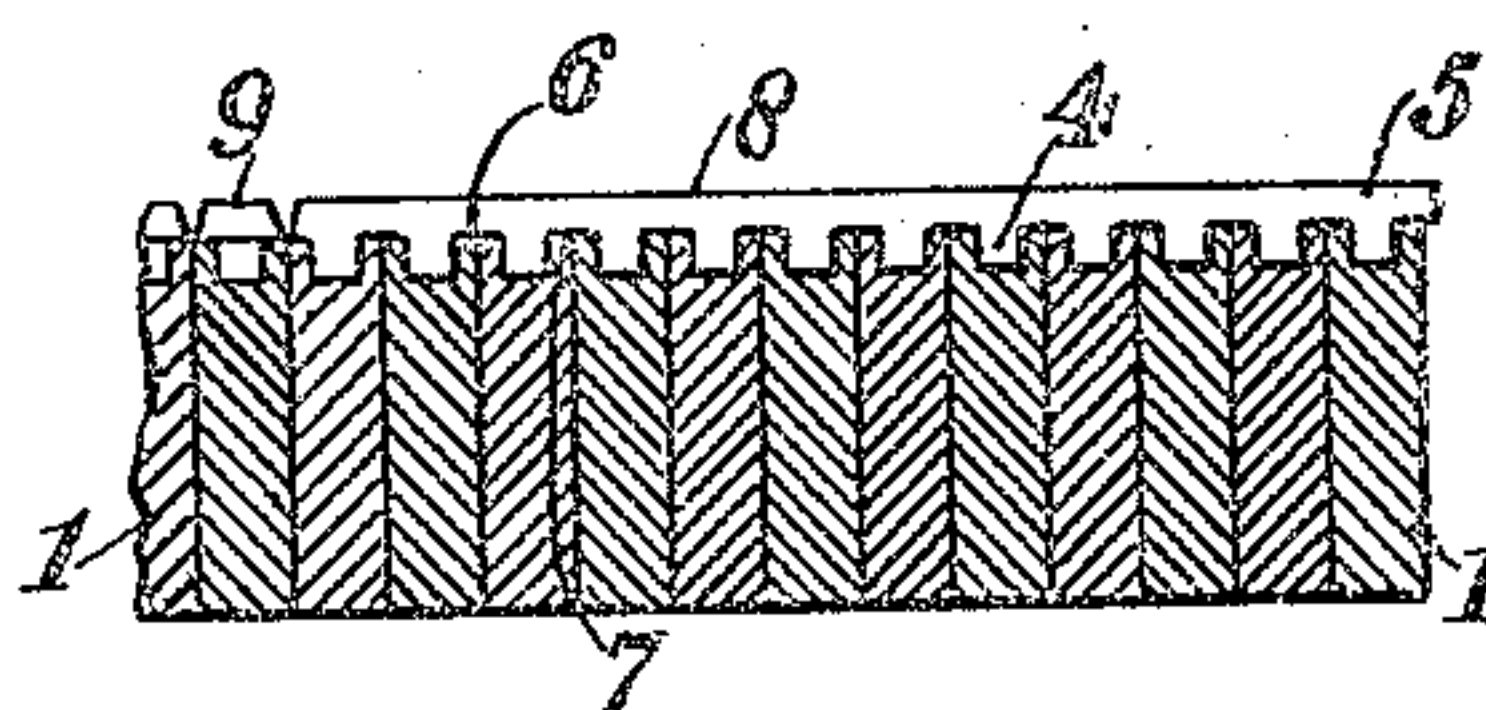


Fig. 4.

| | | | | |
|-----------|---|---|-----|------|
| SPEECHLEY | 5 | 9 | 177 | 2694 |
| JONES | 0 | 6 | 170 | 991 |

Fig. 5.

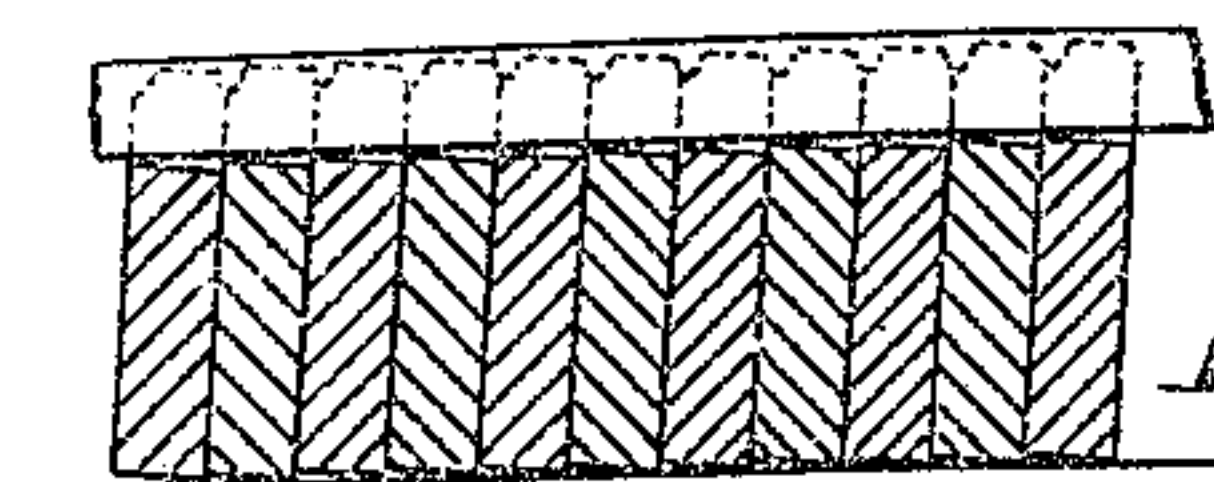


Fig. 6.

Witnesses

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Henry Hart

William R. Speechley

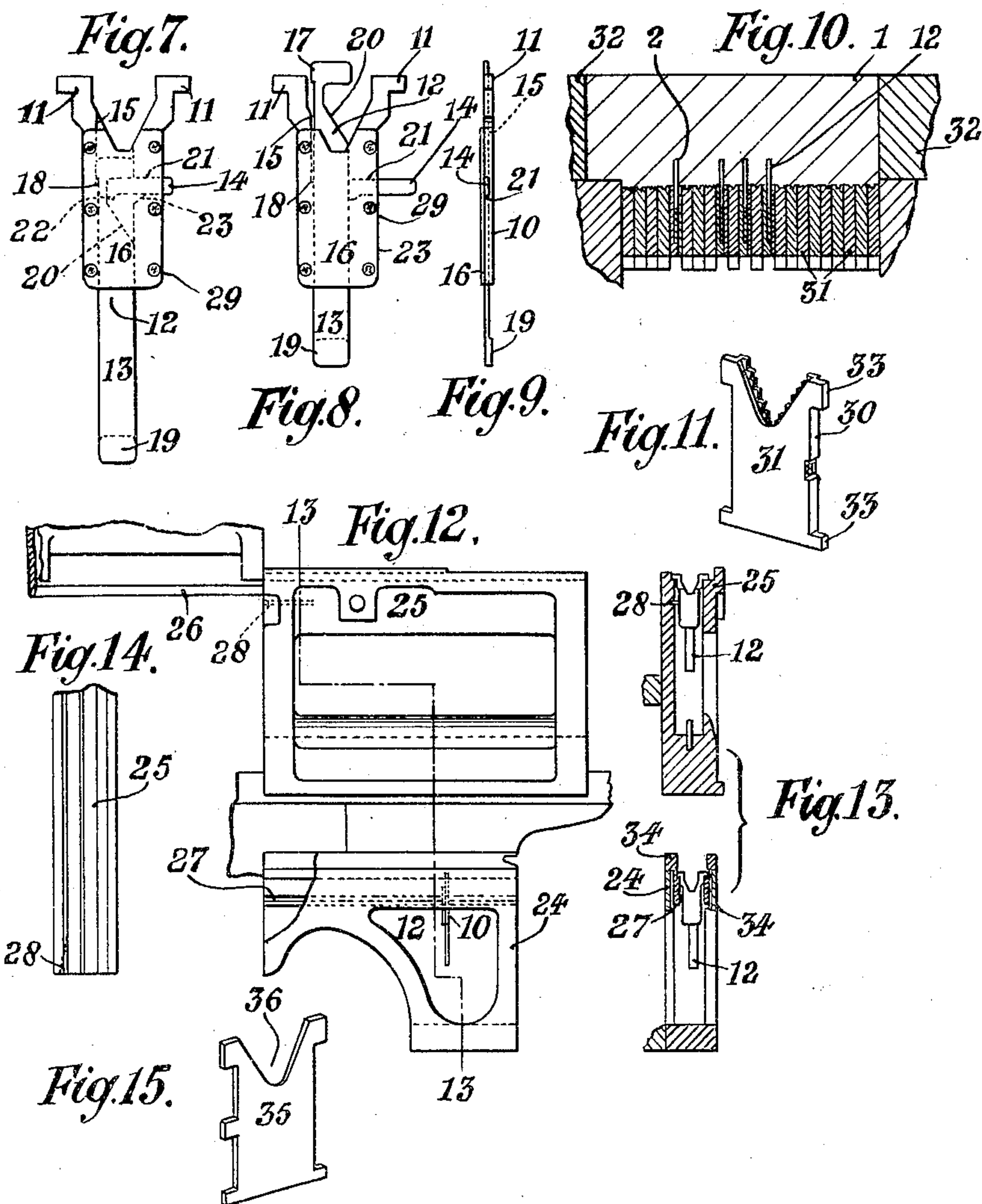
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

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RULE AND LINOTYPE FOR TABULAR MATTER.

SPECIFICATION forming part of Letters Patent No. 793,691, dated July 4, 1905.

Application filed March 18, 1905. Serial No. 250,809.

To all whom it may concern:

Be it known that I, WILLIAM ROBERT SPEECHLEY, of the Linotype Works, Broadheath, Altrincham, in the county of Chester, England, have invented certain new and useful Improvements in Rules and Linotypes for Tabular Matter; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in rules and linotypes for tabular matter and which is adapted to overcome certain difficulties frequently attendant upon the use of rules and linotypes of ordinary construction.

In the casting of linotypes with recesses adapted to receive rules as hitherto practiced these recesses have traversed the entire thickness of the linotypes, and owing to slight discrepancies in the thickness of the matrices the said recesses do not aline precisely when the linotypes are assembled in the galley, and the rules are frequently bent, with the result that the lines printed therefrom are crooked.

According to the present invention the above-mentioned recesses are replaced by sockets which are open only toward the printing edge of the linotypes, and the continuous feet of the rules are notched, so as to form teeth. These teeth being independent of each other can follow the imperfect alinement of the sockets and will when they are engaged therein be prevented thereby from rising, while the same engagement will prevent the linotypes being canted or thrown off their feet.

In the accompanying drawings, which are to be taken as part of this specification and read therewith, Figure 1 is a perspective view of two linotypes according to the present invention. Fig. 2 is a perspective view of a portion of a rule according to the present invention. Fig. 3 is a transverse section of one of the linotypes, taken through one of the recesses thereof. Fig. 4 is a transverse section through a number of the linotypes locked together by the improved rule in printing position. Fig. 5 represents a specimen of

tabular matter such as may be printed from the linotypes represented in Fig. 1. Fig. 6 is a transverse section through a number of linotypes provided with recesses and a rule of ordinary construction and showing the said linotypes canted on their feet in the manner which the devices of the present invention are specially adapted to prevent. Fig. 7 is an elevation of a coring device for producing the before-mentioned special recesses, the coring-tongue of such device being represented in its normal or inoperative position. Fig. 8 is an elevation of the said coring device with the coring tongue in its protruded or operative position. Fig. 9 is an elevation as seen from the right of Fig. 8, showing the same coring device in the position in which it is represented in that figure. Fig. 10 is a horizontal section showing four of the coring devices in an assembled line of linotype-matrices in casting position in front of the casting-mold. Fig. 11 is a perspective view of one of the linotype-matrices with which the coring devices are shown assembled in Fig. 10. Fig. 12 is a front elevation, partly broken away, of part of a linotype-machine modified so as to enable it to effect the coring according to this invention. Fig. 13 is a transverse vertical section on the line 13 13 of Fig. 12. Fig. 14 is a part plan of the upper portion of Fig. 12, this view being shown at right angles to the said Fig. 12; and Fig. 15 is a perspective view of an alternative device by which the before-mentioned special recesses may be produced.

Referring first to Figs. 1, 2, 3, and 4, 1 represents the linotypes, which, excepting as regards the recesses 2, may be of the usual construction. The recesses 2 extend only partly through the thickness of the linotypes, as shown clearly in Figs. 1 and 3, instead of entirely through such thickness, as has hitherto been the arrangement with recesses for receiving rules, the recesses 2 preferably being situated centrally between the two faces 3 of the linotypes. The recesses 2 are of such dimensions as to be capable of receiving with a snug fit the teeth 4 of the special toothed rules 5, (see particularly Fig. 2,) these teeth fitting into

the recesses 2 in the manner shown in Fig. 4, and thereby serving to prevent any lateral canting of the linotypes 1, such as is represented in Fig. 6, which canting sometimes occurs with linotypes as hitherto constructed. The under edges 6 of the rules 5 between the teeth 4 are adapted to bear upon the upper edges 7 of the linotypes 1, and the width of the rules 5 upward from these under edges 6 to the printing edges 8 is such that these printing edges are in the same plane as the printing-faces 9 of the linotypes 1.

One arrangement by which the before-described recesses 2 are produced is represented in Figs. 7 to 14, both inclusive, and consists in a device adapted to be inserted in the composed line of matrices and having a tongue movable in relation to the matrices and adapted to be projected into the mold to serve as a core for producing the required recess in the linotype. Any desired number of these devices may be used in one line, the distance between them being varied according to the width or measure of the respective columns in the form.

Each of these coring devices comprises three main parts—viz., an upper or shorter part 10, constituting the body of the device, having front and rear supporting-lugs 11, a lower or longer part 12, hereinafter called a "slide," having a downwardly-depending tail 13, and a tongue 14, capable of sliding longitudinally in the part 10, so that its rear end may be caused to protrude more or less from the rear edge of the part 10. The cross-sectional area of the coring portion of the tongue 14 is the same as that of each of the teeth 4 of the rule 5, so that each such tongue will form a recess 2 of exactly the size to snugly accommodate one of the teeth 4. The part 10, excepting that it is not wedge-shaped, in general contour somewhat resembles the upper or shorter part of a space-bar, such as described in the specification to Letters Patent No. 436,532, dated September 16, 1890, and in its progress through the linotype-machine it is supported by its lugs 11 in the same manner as is such a space-bar. One side of the part 10 is recessed, as at 15, to form a guide for the slide 12, which is retained in the said guide by a cover-plate 16, riveted to the part 10, as shown in Fig. 7, or secured to it in any other convenient manner. For convenience of description the part 10, together with its cover-plate 16, is referred to as the "body" 10. The slide 12 is formed with a small forward extension 17 at its upper part, which by abutting against a shoulder 18 in the body 10 limits the movement of the said slide relatively to the body 10 in one direction, while in the other direction this relative movement is limited by an enlargement 19 on the lower end of the slide 12, abutting against the under side of the body 10. The slide 12 is also provided with an inclined cam 20, adapted to engage with the

tongue 14, so as to move the latter rearward. The tongue 14 is guided in a recess or guide 21 perpendicular to the guide 15, its rear end projecting out beyond the rear edge of the body 10, while its forward end is provided with an enlargement 22, which by engaging with a shoulder 23 on the body 10 prevents the said tongue from being entirely withdrawn from the said body.

Referring now to Figs. 12, 13, and 14, 24 is the matrix-delivery channel, through which, as in existing linotype-machines, the assembled line passes on its way to the first elevator. 25 is the intermediate space-bar channel, through which, as ordinarily, the space-bars are conducted to their magazine, and 26 is the ordinary matrix guide-bar, which in the usual manner serves to aline the matrices before they are moved into engagement with the so-called "second elevator." The back of the matrix-delivery channel 24 is provided with a horizontal groove 27, so as to enable the tongues 14, which are then in their normal positions, to pass therealong, as shown in Figs. 12 and 13, and the back of the intermediate space-bar channel 25 is provided with an inclined cam-surface 28, Figs. 12 and 14, which engages with the then-projected tongues 14, as shown in Fig. 13, to return them to their normal positions.

In Fig. 13 two of the before-described coring devices are represented—one in the matrix-delivery channel 24 as it would be when traveling toward the casting position and the other in the intermediate space-bar channel 25 as it would be after the casting operation and just before distribution. By the term "casting-face" as hereinafter employed is meant the face 29 of the coring device or the face 30 of the matrix 31, Fig. 11, as the case may be, which during the casting operation is coincident, or partially so, with the front face of the mold-block 32, Fig. 10. In the normal position of the tongue 14 it does not project rearward from the casting-face 29 of the coring device farther than do the rear lugs 33 of the matrices 31 from the casting-face 30. This arrangement admits of the said coring devices being assembled in the assembly-box by hand, as is now usually the practice when inserting a sorts-matrix therein.

The before-described coring devices are inserted in the assembling line at the end of each measure, and after the line is completed it is in the ordinary manner moved through the matrix-delivery channel 24 on its way from the assembly-box to the first elevator. The two latter devices and other hereinafter-mentioned parts of the linotype-machine are not represented in the accompanying drawings, as they are not affected by the present invention. During this movement of the coring devices they are supported by their lugs 11, traveling along the usual space-bar-supporting ledges 34 at the front and back of the

channel 24; the tongues 14 meanwhile passing along the groove 27.

Although no space-bars are represented in Figs. 10, 12, and 13, it will be understood that they may be inserted in the assembling line at such parts as will not disturb the alinement of the recesses in the respective linotypes when these latter are subsequently placed in the necessary juxtaposition for printing, the justification of the separate lines being effected by the expansion of these space-bars in the usual manner.

When the assembled line is presented in front of the mold 32, the justification-block ascends as it ordinarily does to effect the justification, and thereby raises the before-described slides 12, so as to cause the cams 20 thereon to move the tongues 14 rearward into the mold-cavity, as shown in Fig. 10. The linotype 3 is then cast, a recess 2, adapted to receive a rule-tooth 4, being produced at each part at which a tongue 14 projects into the mold. After the casting operation and the usual withdrawal of the mold the first elevator ascends to the matrix guide-bar 26 and if the slides 12 have not already fallen by gravity brings their upper ends against the under side of the said matrix guide-bar, so as to depress them relatively to the tongues 14, thereby leaving the latter free to be returned to their normal positions. As the composed line is being moved from the first elevator to the second elevator the rear ends of the tongues 14 are moved over the inclined cam-surface 28 in the intermediate space-bar channel 25, and thereby return to their original positions. Before the space-bar grabber has returned the space-bars to their magazine the machine is stopped, and the before-described coring devices are taken out of the intermediate space-bar channel 25 by hand and returned to the sorts-box or other convenient receptacle wherein they are stored.

Instead of the tongues 14 being movable in or on their supports, as previously described with reference to Figs. 7 to 14, they may be, as shown in Fig. 15, formed each as an integral part of a body, which in general contour resembles the linotype-matrix 31, Fig. 11, these tongues being of the cross-sectional area adapted to produce recesses 2 centrally within the thickness of the linotypes and of the requisite dimensions to snugly accommodate the rule-teeth 4. If these special matrices 35 are to be distributed into the magazine, the

V-shaped notches 36 thereof are toothed, (as shown in connection with the before-described matrix 31,) so that the said matrices may be engaged with and be raised by the elevator-arm, and they subsequently fall into the appropriate magazine-channel, as in the ordinary matrix distribution. If, however, the matrices are not to be so distributed, the V-shaped notches 36 are plain, as shown in Fig. 15, so that they will not engage with the suspending-plate of the elevator-arm, but fall into the sorts-box, from which they may be removed as occasion may require for composing by hand into the line of matrices in the assembly-box.

It is to be distinctly understood that the devices hereinbefore described and represented in Figs. 7 to 15, inclusive, of the accompanying drawings are introduced into the present specification merely as a convenient illustration of means for forming the before-described recesses in the linotypes and that these devices constitute the subject-matter of the already granted Letters Patent No. 754,619, dated March 15, 1904, and therefore are not in any respect claimed herein.

I claim—

1. As a new article of manufacture the combination comprising a linotype having recesses open only toward the printing edge of such linotype, and a rule having teeth adapted to enter the recesses of a plurality of such linotypes when the latter are arranged in juxtaposition.

2. The combination with a plurality of linotypes having recesses open only toward the printing edge of such linotypes, of a rule having teeth adapted to fit into the said recesses when the linotypes are arranged in juxtaposition, and whose printing edge, when the said rule is so fitted, is situated in the same plane as the printing-faces of the linotypes.

3. The combination with a linotype having a recess situated between, and not extending to, the two side faces of the linotype, of a rule having teeth adapted to fit into the recesses of a plurality of such linotypes when the latter are juxtaposed, and thereby prevent lateral canting of the said linotypes.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

WILLIAM ROBERT SPEECHLEY.

Witnesses:

JOHN W. THOMAS,

ERNALD SIMPSON MOSELEY.