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D. B. RAY.

SPACE FOR JUSTIFYING LINES OF TYPE.

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Fig. 1.

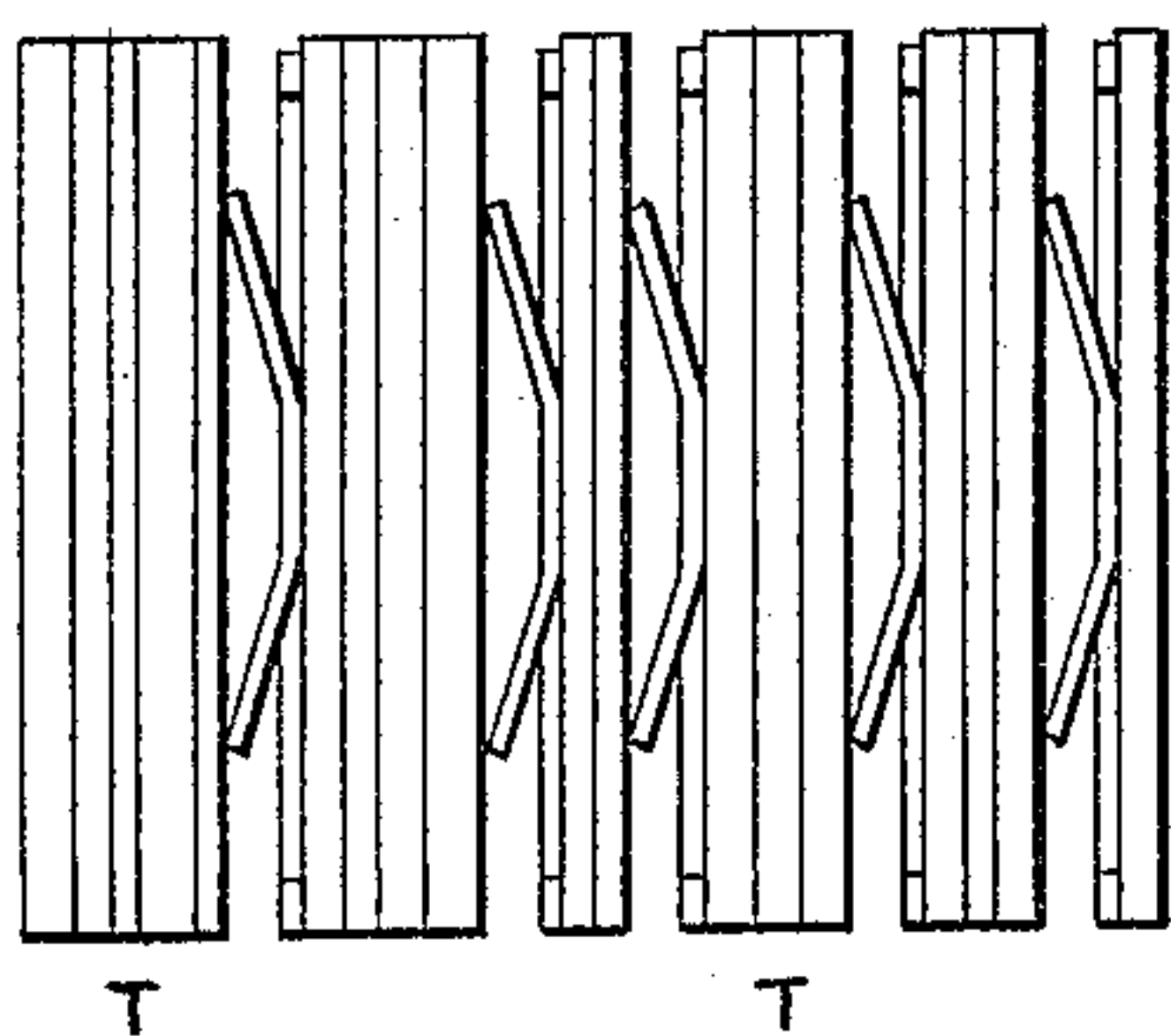


Fig. 2.

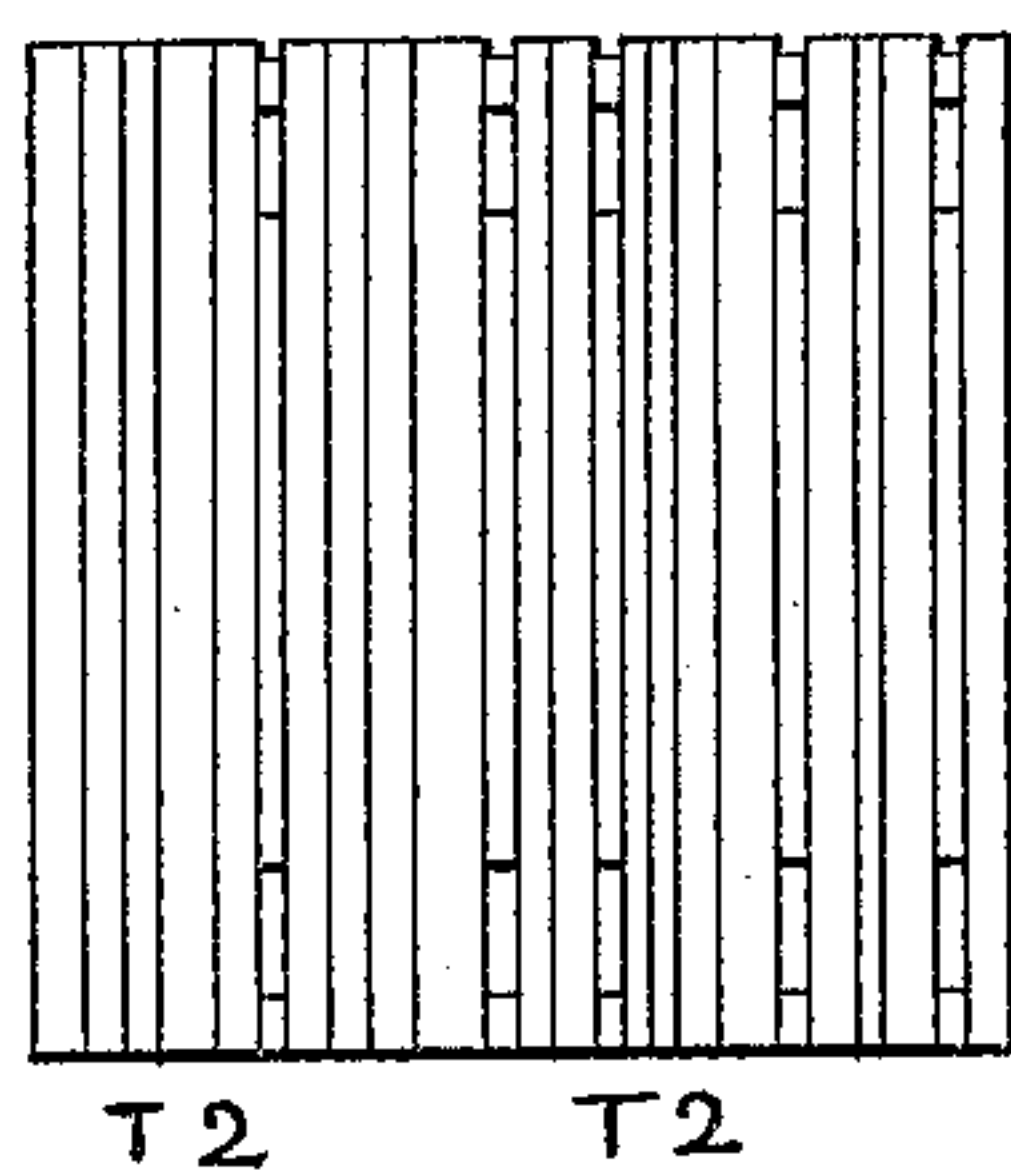


Fig. 3, Fig. 4, Fig. 5, Fig. 6, Fig. 7, Fig. 8,

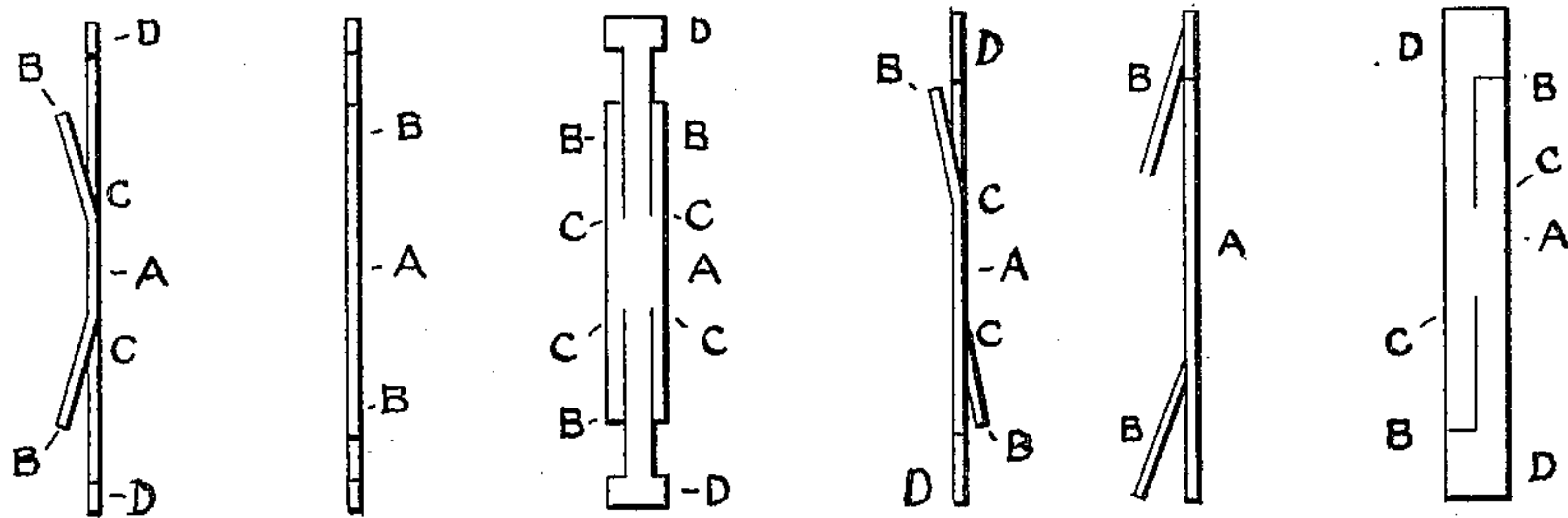


Fig. 9,

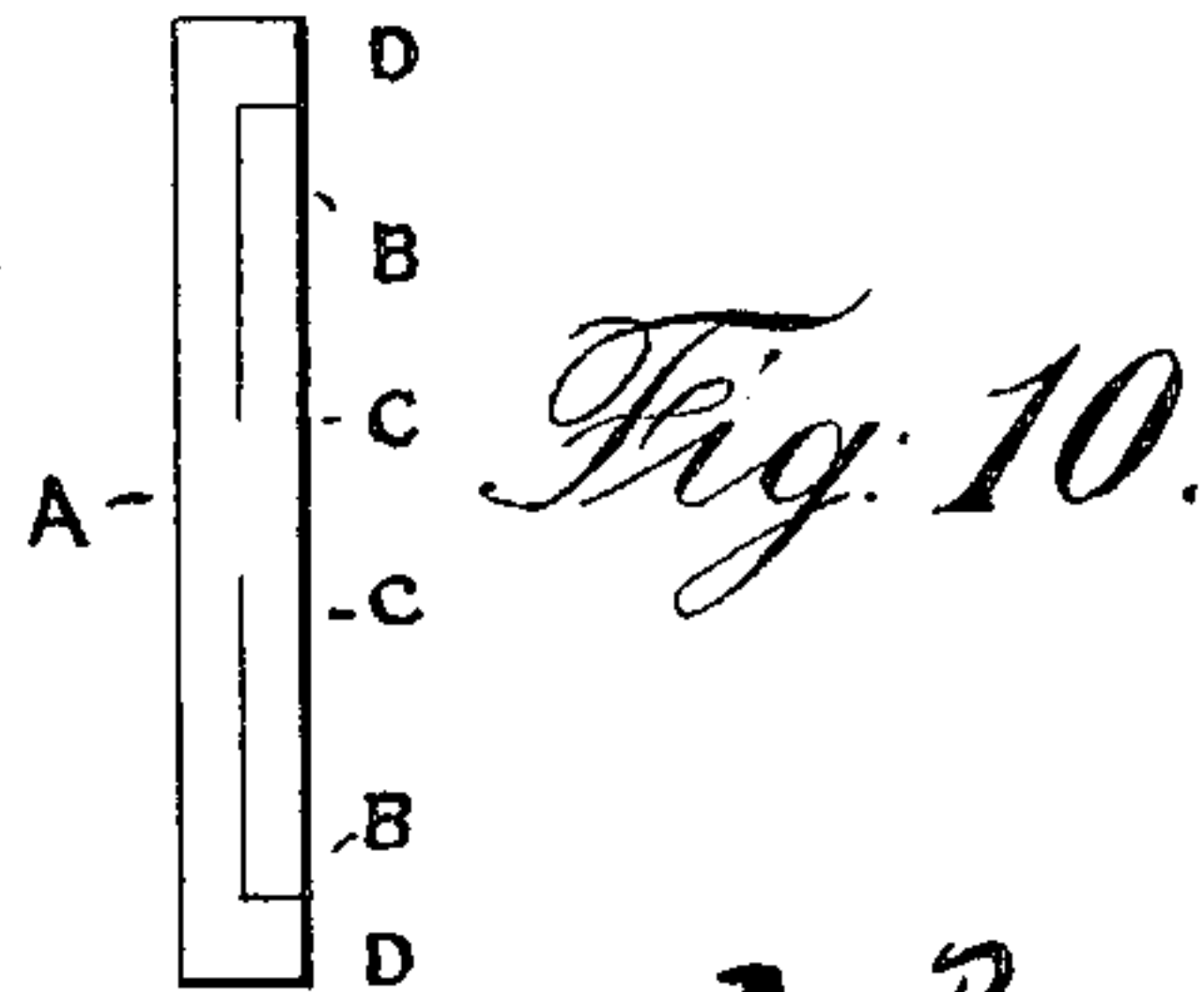
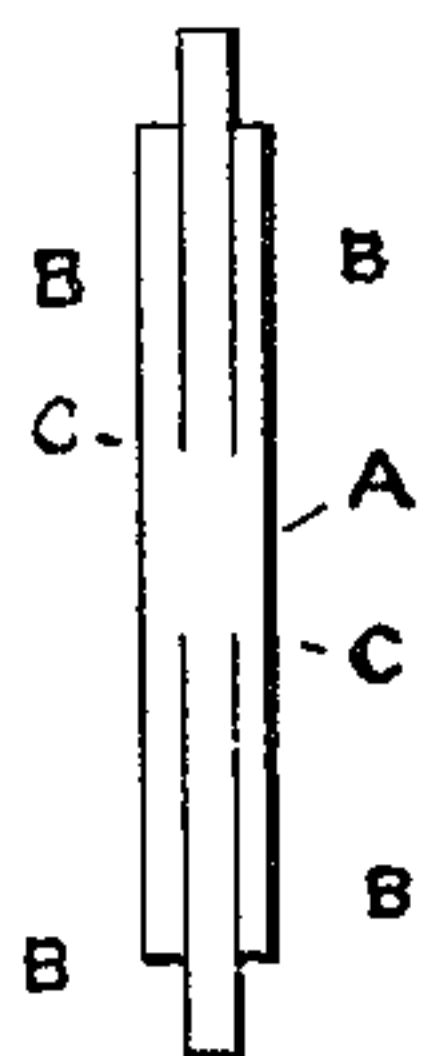


Fig. 10.

Witnesses
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SPACE FOR JUSTIFYING LINES OF TYPE.

No. 821,885.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, DAVID BRAINERD RAY, a citizen of the United States, and a resident of the borough of Manhattan, city, county, and State of New York, have invented certain new and useful Improvements in Spaces for Justifying Lines of Type, which improvements are fully set forth in the following specification and the accompanying drawings.

My newly-invented space is designed for use in setting type by hand or machinery. It is a great improvement, because it saves time, as the lines of type can be adjusted as to length by a single movement of a lever. It is made of compressible non-elastic material, preferably soft sheet-brass, and is of less height than the type. It is inserted between the words as the line is set up. When the line is full, the spaces are compressed by a lever which presses against the end of the line. The compressible spaces yield sufficiently to shorten the line to the required length. After being used they can be restored to their former shape and can be used again.

I am aware that compressible spaces, elastic and non-elastic, have been invented; but they all have defects, which my newly-invented space overcomes. Spring-spaces cannot be used in practice, because their resilient force throws the line into fragments as soon as the pressure is removed. If such spaces were only one-sixtieth of an inch thick, the total thickness of all the steel springs required for one page of a large daily newspaper would amount to over one hundred and fifty inches. No machinery in the world could compress one hundred and fifty inches of steel, and no printer's chase could withstand the resilient force of such a number of springs. Furthermore, it is impossible to distribute type where elastic spaces are used, for the reason that all pressure must be removed from the ends of the lines in order to distribute, and as soon as pressure is removed the type fly apart in all directions.

A line is not really spaced unless it remains in proper position as long as required—that is, it is not really spaced unless it stays spaced. If spaced by spring-spaces, it breaks into a hundred fragments the instant the pressure is removed.

The compressible and non-elastic spaces heretofore devised have been defective for two reasons: that they expand as a whole upward under compression and lift the line

of type off its feet, necessitating readjustment, with consequent loss of time, or that they are incapable from their construction of being compressed to one thickness of metal or compressed to the thickness of one sheet of metal. It is to overcome these difficulties that I have devised the form of spaces shown in the accompanying drawings, wherein—

Figure 1 shows a line of type with spaces in position between the words, said spaces being uncompressed. Fig. 2 shows a line of type with spaces compressed; Fig. 3, an edge of the space shown in Fig. 5 with tongues or branches uncompressed; Fig. 4, an edge of the same with compressed tongues; Fig. 5, a face view of Fig. 4; Figs. 6 and 8, edge and face views, respectively, of another form of space; Fig. 7, an edge view of a modification having downwardly-projecting tongues; Figs. 9 and 10, face views of modifications.

The spaces shown in the figures are made of one thickness of sheet metal of a width equal to a line of type and of a thickness equal to that of the thinnest type used. Each space consists, preferably, of a vertical main portion or body A, having projecting therefrom the oppositely-disposed but non-resilient tongues or branches B B. These tongues are struck up from the blank from which the space is formed and preferably project in opposite directions to each other and downwardly on either side of the plane of the body of the space. Though it is not absolutely necessary that the main part or body A of the space be longer than the tongues, yet I prefer to make it with an extension or shank C, projecting vertically beyond the tongues and having feet D the full width of the space, as by this construction I get a good bearing for the spaces on the bottom of the "stick." These are the general characteristics of my compressible non-elastic space; but they may be embodied in a number of different forms, some of which I have shown in Figs. 3 to 10.

In Fig. 5 there are two sets of tongues B on either side of the body, the extension of the body having a T-shaped foot.

In Figs. 6 and 8 the blank in each space is made partly divided longitudinally on the center line, the tongues being bent out on opposite sides of the blank.

In Fig. 10 the blank is the same as in Fig. 8, except that the tongues instead of projecting on opposite sides both project on one side.

In Fig. 9 the blank is the same as in Fig. 5, except that the extension of the body A has no enlarged foot.

In Fig. 7 both tongues project outward on the same side and downward in the same direction.

It will be noted that in all these forms the tongues when compressed are not longer than the main portion of the space, and therefore do not rest on the bottom of the stick when the space is set up. If a tongue was longer than the main part, a compression of the two toward each other would tend to elongate or raise the space, and the adjacent type would be raised with it. This would be particularly the case if there were no central vertical body portion having a shank—in other words, if there were only the tongues at the middle projecting out on each side and themselves resting on the bottom of the stick. The central vertical body and shank prevents the tongues having contact with the bottom at any point in the movement.

When, as in the preferable form of my invention, the tongues or branches project in opposite directions, they act each to counteract the push of the other, so that the type cannot be forced upward. If, however, the tongues both project in one direction, that direction should be downward. Thereby the movement of the tongues tends to force the type downward and against the bottom of the stick.

The advantages of my invention are many. It follows from the tongues being non-resilient, first, that a much less degree of force need be used to compress them than if they were spring-tongues; second, that when compressed they hold the position given to them; third, that when the chase is unlocked they do not tend to spring outward, break the form, and scatter the type.

Because of the shape of the space it is not crushed or distorted by compression, and after use the tongues can be easily restored to their normal position.

By reason of the central uncompressed shank for resting on the bottom of the stick the type are not pushed upward when the space is compressed, and the wide foot gives a firm bearing to the space.

As the tongues are shorter than the vertical body and shank, when they come to a position nearly vertical they do not strike against the bottom of the stick, thus making it much easier to compress the tongues at the last part of their movement.

Because the tongues are struck out of the body and not merely attached thereto when they are fully compressed they do not project beyond the plane of the body, thus allowing the body to be made of thicker and stronger metal than if this were not the case. Again, by reason of its form the metal of which the blank is made is not creased or

folded on itself. A space whose blank is folded cracks and splits on the line of the fold when used a few times, whereas a space of the character herein described is practically indestructible.

Having described my invention, what I claim is—

1. A space for use for setting type having a body portion of a single thickness, and a compressible non-resilient tongue of the same thickness as the body of the space-piece and normally at an angle to said body portion.

2. A space for use in setting type consisting of a body portion, a compressible, non-resilient tongue integral therewith and normally projecting at an angle therefrom said tongue being adapted to be pressed back to the plane of the base-piece and adapted to lie within the margins of the ends of the body part.

3. A space for use in justifying lines of type consisting of a base-piece and integral outward projecting compressible, non-resilient tongues equal in thickness to the base-piece and the tongues being adapted to be pressed back to the plane of the base-piece, the base-piece extending to the ends of the tongues when said tongues are in the plane of the base-piece.

4. A space for use in justifying lines of type consisting of a non-resilient blank divided longitudinally near each of its ends to form outward-extending compressible, non-resilient tongues, said tongues normally standing at an acute angle to the base-piece, and one of said tongues being formed at each end of the base.

5. A space for use in setting type, having an incompressible body portion, and a compressible but non-resilient tongue shorter than the body and being struck out of the blank of the said body portion, substantially as described.

6. A space for use in setting type, having an incompressible body portion and oppositely-disposed compressible but non-resilient tongues integral with the said body portion the said body portion being longer than the tongues, substantially as described.

7. A space for use for setting type, having an incompressible body portion and oppositely-disposed compressible but non-resilient tongues integral with the said body portion the said body portion being longer than the tongues and provided with a foot as wide as a type, substantially as described.

8. A space for use in setting type, the same consisting of a non-resilient blank divided longitudinally from its ends toward the center on a median line, two of said divisions forming a straight body portion, and the other two of said divisions being bent outwardly from the blank to form projecting non-resilient tongues, substantially as described.

9. A space for use in setting type, consisting of a non-resilient body portion, having a non-resilient tongue struck up therefrom, the said tongue being cut out from the blank of the body and adapted to be forced back into the plane of said body, substantially as described.

10. A space for use in justifying type having a straight flat incompressible body part and oppositely-disposed compressible tongues integral with the said body part said body part extending to the ends of the tongues and on which the space is adapted to rest when in position in the lines of type.

11. A space for use in justifying lines of type having a flat body part and tongues integral with said body part and extending at an angle thereto, the body part extending to the ends of the tongues and being provided with a foot on which it is adapted to rest when in position in a line of type.

12. A space for use in justifying lines of type having a flat body part and oppositely-disposed compressible tongues struck up from said body part and normally extending at an angle thereto, said tongues being adapted to be pressed back into the plane of the body part, said body part extending to the ends of the tongues when the same are compressed, whereby the space-pieces will rest on one end of the body part when in position in a line of type.

13. For use in setting type, a compressible non-elastic space made of a single thickness of metal, and not folded on itself, having branches extending outward from near the middle part thereof.

14. For use in setting type a compressible non-elastic space made of a single thickness of metal and not doubled over, having branches extending outward from near the middle part thereof so constructed that said branches can be compressed into the same plane with said middle part.

15. For use in setting type, a compressible non-elastic space made of a single thickness of metal, not folded over, divided lengthwise from a point near the middle part thereof to a point near the end of the same, thereby forming branches extending from said middle part.

16. For use in setting type a compressible non-elastic space having branches of equal length one or more of which when undergoing compression exerts a downward pressure and the other an equal upward pressure against the adjoining type whereby the words in a line are braced apart equally and the type are not pushed upward.

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Witnesses:

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