Jan. 12, 1960 E. RONDTHALER ET AL 2,920,541

PHOTOTYPOGRAPHY

Filed July 13, 1955 3 Sheets-Sheet 1

Fig. 1

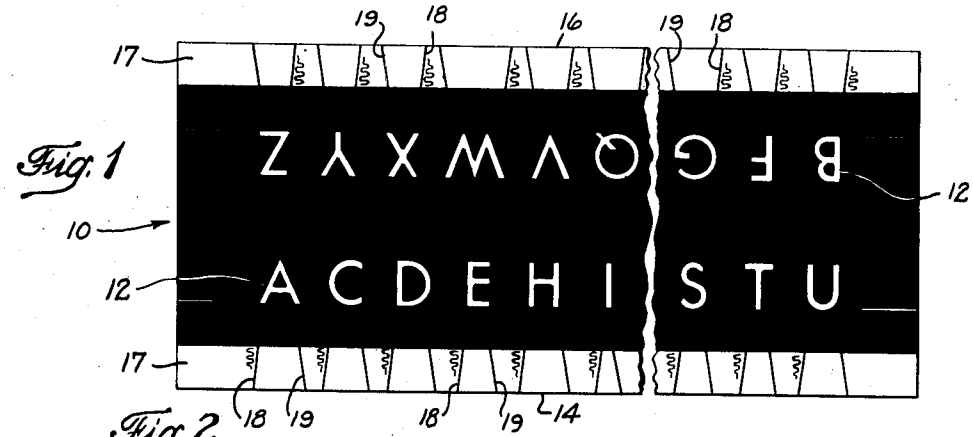


Fig. 2

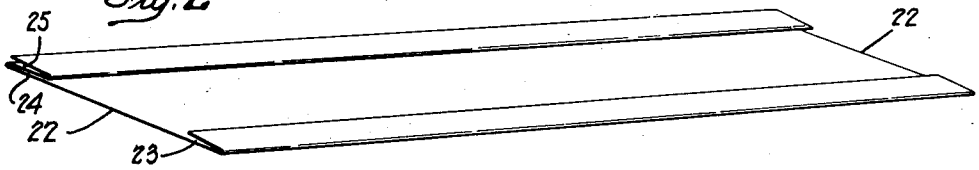


Fig. 3

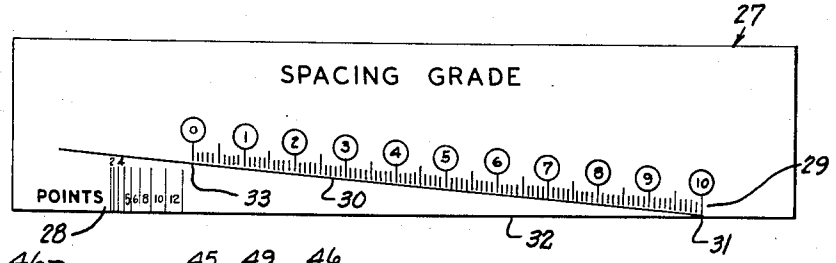


Fig. 4

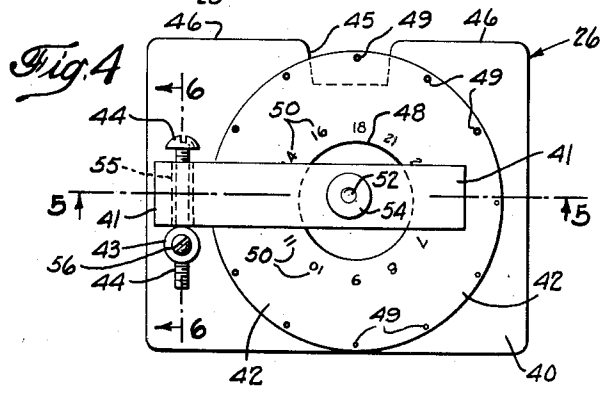
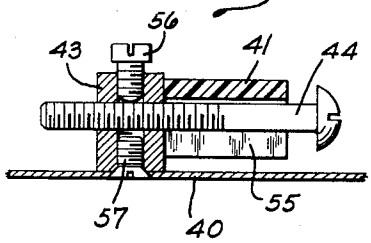


Fig. 6



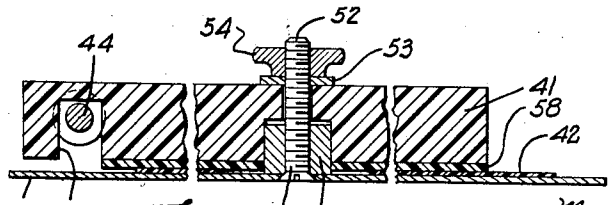


Fig. 5

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PHOTOTYPOGRAPHY

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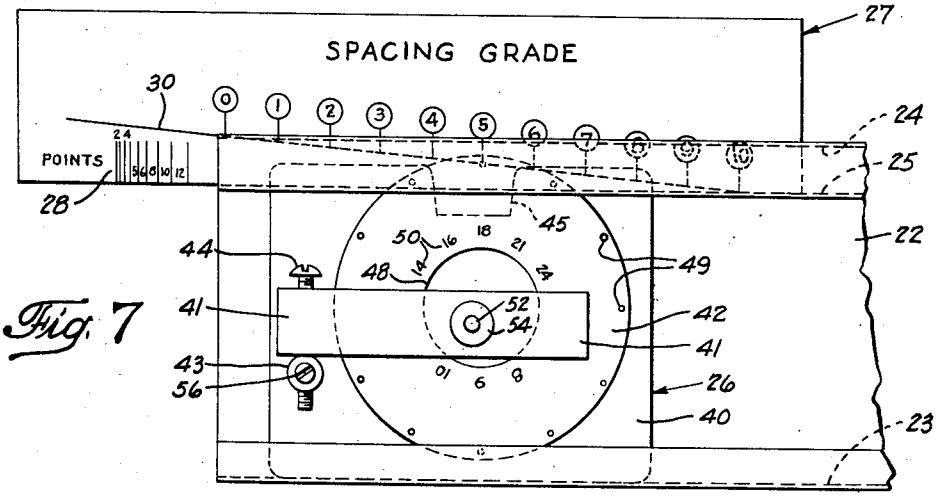


Fig. 7

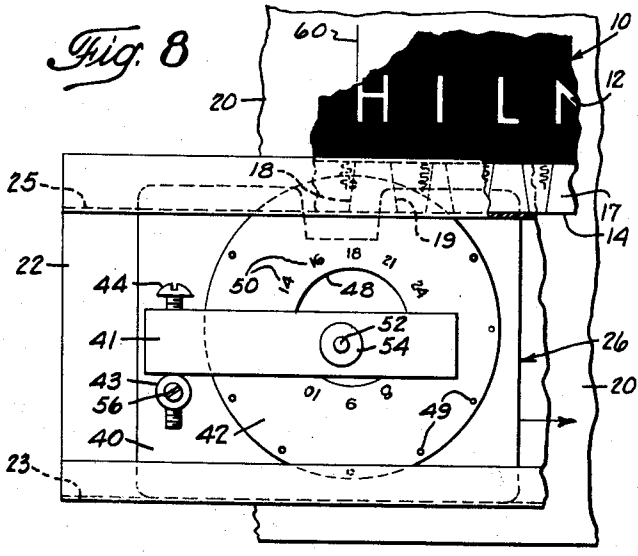


Fig. 8

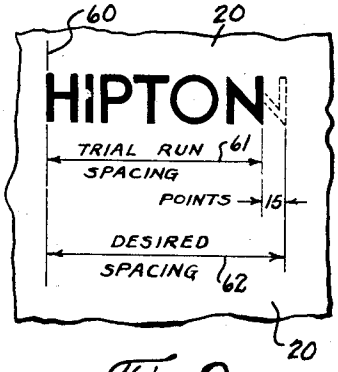


Fig. 9

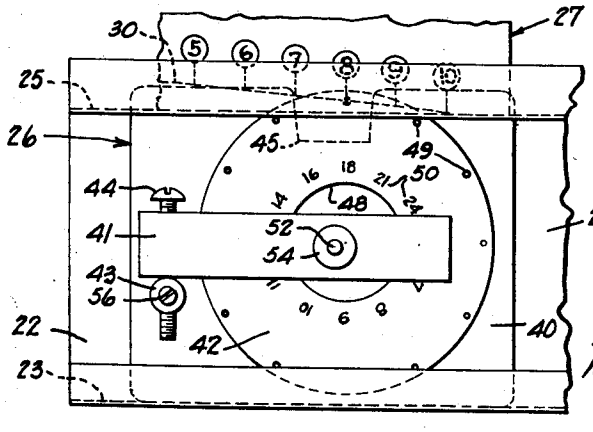


Fig. 10

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PHOTOTYPOGRAPHY

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Fig. 11

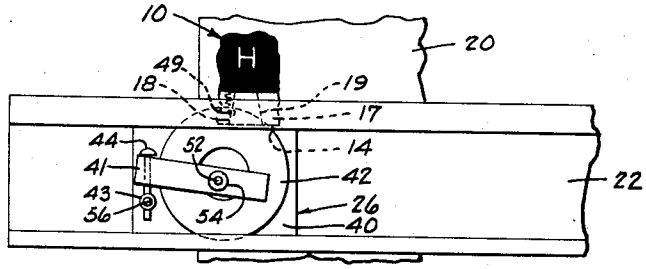


Fig. 12

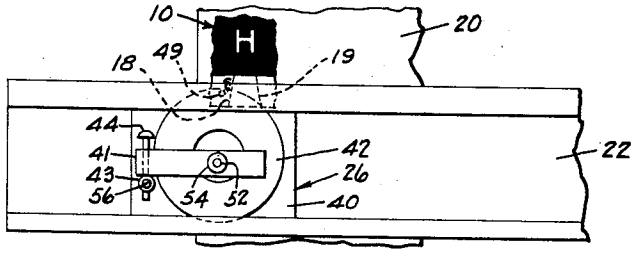


Fig. 13

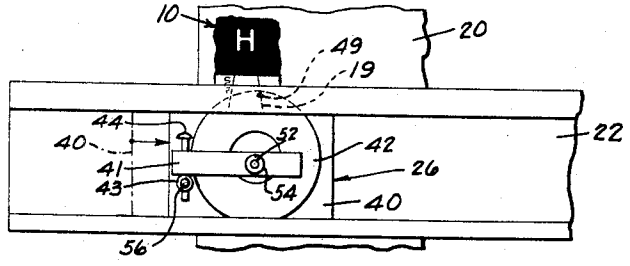


Fig. 14

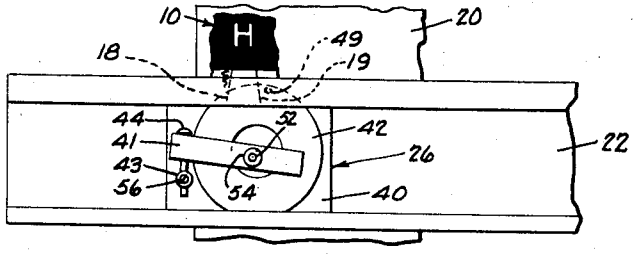
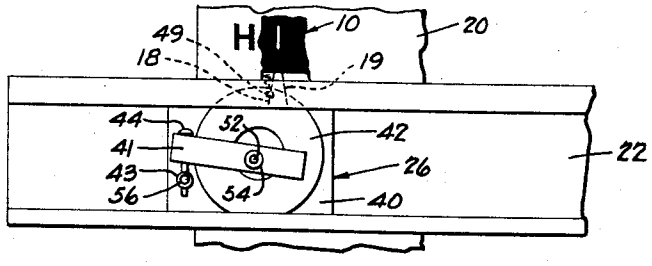


Fig. 15



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United States Patent Office 2,920,541
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2,920,541

PHOTOTYPOGRAPHY

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Application July 13, 1955, Serial No. 521,693

8 Claims. (Cl. 95—4.5)

The invention relates to apparatus and methods for photographically composing ornamental and textual matter on photosensitive material and more particularly to perform such composing so the ornamental and textual matter will occupy accurately a given space or distance.

Objects and advantages of the invention will be set forth in part hereinafter and in part will be obvious herefrom, or may be learned by practice with the invention, the same being realized and attained by means of the instrumentalities and combinations pointed out in the appended claims.

The invention consists in the novel parts, steps, constructions, arrangements, processes, combination and improvements herein shown and described.

The accompanying drawings, referred to herein and constituting a part hereof, illustrate one embodiment of and a preferred manner of carrying out the invention, and together with the description, serve to explain the principles of the invention.

The invention described herein has for one of its objects the provision of apparatus and methods whereby a word, line of textual matter, ornamental characters and the like, to be photographically composed from a stencil, may be justified, that is lengthened or shortened, so as to occupy accurately a specific space or distance. Further, the apparatus and process provide a means which, in conjunction with letter-spacing means forming part of the stencil, enable an operator to determine accurately which portion of the letter-spacing means should be used for justifying a desired word or group of words.

Another object of the invention is the provision of apparatus which may be manufactured at a low cost, will be simple to adjust and operate by either experienced or inexperienced persons and will enable such persons to compose photographically, words and textual matter which will accurately fit into a designated space on a photosensitive sheet of material.

Generally considered, the apparatus consists of phototypographical stencils, a transparent guide member, an adjustable indexing device and a transparent scale by which calculations, measurements and adjustments of the indexing device may be made.

The stencils are preferably made of photographic film on which desired letters, numerals, characters or other designs appear as transparent portions on an opaque background. The stencils are transparent along each of the long margins where a pair of diverging index lines are provided beneath each letter or other character whereby, in conjunction with an indexing device, proper spacing between one character and any other may be gauged.

The guide member is formed from a stiff, transparent sheet material, such as plastic, and is reversely double-folded along one long edge to provide two oppositely facing channels and singly folded along the other long edge. Thus, the guide member provides an open sided guideway along one edge to slidably receive a stencil and another closed guideway to slidably receive the indexing device.

The indexing device comprises a base plate having a cutout area along its upper edge and provided with a transparent disc which is adustably mounted between the plate and a pivoted bar carried by the plate. The transparent disc is provided near its periphery with a series of small printed circles of various sizes any one of which may be used as a reference circle for use in conjunction with the index lines on the stencils. The pivoted bar is adapted to serve either as a clamp and handle in one method of use or as a movable member in an alternative use of the device for justifying the length of a word or group of characters.

The transparent scale, designated herein as the "spacing grade," is a transparent film on which two scales are printed, one for measuring distances in any desired system of units and the other for use in setting one of the reference circles on the indexing device.

The method for using the above described articles to photographically compose a word on photosensitive material comprises the steps of placing a phototypographical stencil, such as one bearing an alphabet, in the upper channel of the transparent guide member, placing the indexing device in the body portion and adjusting one of the reference circles so as to appear centrally in the cut-out area of the indexing device and in a desired relationship to the stencil index lines. Thus arranged, the stencil and guide are placed on the photosensitive sheet so as to bring the first letter of the chosen word at the proper starting position for that word. The guide member may be temporarily secured to the photosensitive sheet to prevent movement of the guide during manipulation of the other parts.

An electric lamp having an illuminating area controlled by a mask may now be placed over the selected letter and lit, thus exposing the letter to the photosensitive sheet.

Holding the stencil stationary the indexing device is moved to bring its reference circle exactly beneath and bisected by the index line on the stencil which is at the right side of the letter just exposed. Next, the stencil is moved to bring the left hand index line of the second letter of the word exactly beneath the reference circle. This letter, the second of the word, may now be exposed.

Again holding the stencil stationary, the indexing device is shifted to the right to bisect its reference circle beneath the right hand index line of the letter just exposed. The next, or third, letter on the stencil may now be brought into position. Continuation of the alternate shifting of the indexing device and the stencil until all the letters of the desired word have been exposed assures the proper and artistic spacing of the letters in the selected word without any judgment for spacing required of the operator.

When the word or textual matter to be composed is required to fit exactly into a given space it is necessary that the operation described above be preceded by a trial run of the apparatus to determine the amount of justifying necessary. Using this information in a simple calculation a value is obtained by which the "spacing grade" scale may be used to reset the position of the reference circle. This new position, when used with the stencil index lines, will produce a greater or lesser space between letters (whichever may be required) during the final photographic run of the apparatus over the sensitized sheet.

An alternative method of adjusting and manipulating the indexing device for justifying a word or group of words is to use the bar on the indexing device as a lever having a selective limited swing and securing the reference circle disc to the bar so as to swing therewith.

The amount of movement permitted the bar is determined by a trial run, simple calculation and use of the unit scale on the "spacing grade." By rocking the bar and its attached reference circle disc in a particular sequence and to a uniform degree during the step by step photographic exposure of a word the space between each letter which was used in the trial run for the word is increased or decreased (as required) to justfy exactly the desired word for the given space.

It will be understood that the foregoing general description and the following detailed description as well are exemplary and explanatory of the invention but are not restrictive thereof.

Of the drawings:

Figure 1 is a plan view, partly broken away, of an illustrative type of phototypographical stencil with which registering and line-length justifying devices may be used;

Figure 2 is a perspective view of one form of a transparent guide member;

Figure 3 is a plan view of a transparent scale member having inscribed thereon a lineal scale in any desired system of units and a graduated inclined line for use in adjusting an indexing device;

Figure 4 is a plan view of an indexing device having a transparent and adjustable disc member which is inscribed with reference indicia;

Figure 5 is a sectional view of the indexing device taken along the line 5—5 of Figure 4;

Figure 6 is a fragmentary sectional view taken along the line 6—6 of Figure 4;

Figure 7 is a fragmentary plan view showing the guide member, indexing device and scale member as they would appear when the indexing device is being adjusted to a desired scale setting for use in a particular operation;

Figure 8 is a fragmentary plan view showing the guide member, indexing device and phototypographical stencil as arranged for use;

Figure 9 is an illustrative showing of a sample word having the spacing between each letter in accordance with a trial setting of the indexing device;

Figure 10 is a fragmentary plan view similar to Figure 7 but showing the indexing device reset to a different position in accordance with information derived from a trial run of the desired word; and

Figures 11 to 15 are fragmentary plan views of the apparatus during successive steps of an alternative method of use for justifying a word length.

Referring now in detail to the preferred embodiments of the invention illustrated in the drawings:

The stencil **10**, shown for the purpose of illustrating the invention, is preferably formed as a photographic film on which transparent letters **12** appear in an opaque background. The letters **12** are usually arranged in two rows parallel to and spaced from each of the long edges **14** and **16** of the rectangularly shaped stencil **10**. For convenience in manipulating the stencil, keeping its length within reasonable limits and reducing the need for shifting from one row of letters to the other during the spelling out of a word each row of letters is arranged alphabetically but one row contains the most used letters in the English language while the other row contains the least used. It is to be understood, however, that this particular arrangement of the letters on the stencil is not essential to the operation of the apparatus as herein described but may be used with any letter arrangement. A transparent area **17** is provided between each edge **14** and **16** and a line near the bottom of the adjacent row of letters **12**. In the transparent area **17** and beneath each letter of the adjacent row there is provided a left hand index line **18** adjacent the left side of the letter and a right hand index line **19** adjacent the right side of the letter. Each set of index lines **18** and **19** diverge outward with respect to each other and, in conjunction with an indexing device, serve as the means for variously spacing the various letters from each other in a manner artistically proper for the particular letters involved. The letter images **12** on the stencil are adapted to be transferred to a photosensitive surface **20** upon exposure to light, either from an electric lamp (not shown) or other source. Various means for shielding the lamp and masking the letters not to be transferred at a particular moment may be provided but are not described herein as they form no part of the present invention.

A guide member **22** is provided in which the stencil **10** can be slidably mounted and guided during its manipulation to form a word or other textual matter. See Figure 2. As embodied guide the member **22** is a relatively long, rectangular strip of thin, stiff, transparent material having its lower long edge reversely bent upon itself to form a narrow guideway **23** and its upper long edge doubly reversely bent to form two superimposed oppositely facing guideways **24** and **25**. Guideway **24** faces inwardly toward guideway **23** and guideway **25** faces outwardly. The bottoms of all three guideways are parallel with each other. Guideway **25** serves as the guiding means for the stencil **10** and guideways **23** and **24** together form a channel in which an indexing device **26** may be manipulated and guided in proper relation to the stencil **10**. Guideway **25** also serves as the positioning means for a scale member **27** which is used during certain stages of operation.

The scale member **27** is a thin, transparent film which is rectangular in shape and provided with two scales or measuring means inscribed thereon. One scale, designated as the "units scale" **28**, is a series of vertically inscribed lines placed at a convenient spot along the lower edge of the scale member **27** and spaced from each other at progressively greater distances. If desired, these lines may be spaced according to the point system for type sizes as used in the typographical art. As shown in Figure 3, the intervals between lines, from left to right, may be indicated as 2, 3, 4, 5, 6, 8, 10 and 12 units. The units scale **28** may be used for determining the amount of justification a word or line of textual matter required for a desired lettering layout and also for use in adjusting the indexing device **26** to accomplish such justification.

A second scale, designated as grade scale **29**, is also inscribed on the scale member **27** and comprises a straight line **30** originating at a point **31** on the lower edge **32** of the scale member and extending leftwardly and upwardly at an acute angle to the edge **32**. Line **30** is divided into 100 equal parts which may be in the order of 1/16 of an inch each for the purpose of legibility. Each tenth division is labelled with a number and these numbers read consecutively from 1 to 10. The "10" point is the point of origin **31** of the line **30** along the edge **32** of the scale member **27** while the zero point **33** is a considerable distance to the left. The slope of the line **30** away from the edge **32** is predetermined so as to provide a reasonable degree of spacing between graduations without making the scale too long for convenience. The controlling point is the location of the zero point with respect to the scale edge **32**. This distance is derived from and roughly corresponds to the vertical distance between one of the edge lines **14** or **16** of the stencil **10** and the adjacent edge of the opaque portion.

When using the grade scale **29** to determine the setting for a reference mark on the indexing device **26** the numbers "1" to "10" on the scale indicate the distance in units any particular setting will add or subtract from the basic spacing provided by the original point of intersection between the circles **49** and the index lines **18** or **19**. Thus, if the reference mark is set at the number "7" the difference between this setting and the original setting will give the number of spacing units which will be added or subtracted, as the case may be, to the original spacing distance.

Depending upon the use to be made of the scale mem-

ber 27 it is used either independently or in conjunction with the indexing device 26 and the guide member 22.

The indexing device 26 is utilized to space the letters of a word and is used in conjunction with the index lines 18 and 19 of the stencil 10 when both the stencil and the indexing device are in proper juxtaposition in the guide member 22. See Figures 4, 5, and 6. It is also adapted to space the letters a predetermined distance apart so that the completed word or text will occupy exactly a given distance.

As embodied, the indexing device 26 comprises a base plate 40, a pivoted bar 41, a transparent reference disc 42 and a stop post 43 which carries a stop screw 44. The base plate 40 is preferably made of metal, is substantially rectangular in shape having a length only slightly greater than its width and is provided with a large cut-out 45 in the central portion of its upper edge 46. The thickness and width of the plate 40 is such that it is slidably retainable in both the guideways 23, 24 of the guide member 22. Further, its width may be sufficiently less than that of the guide member so that either the bottom of the guideway 23 or the bottom of guideway 24, but preferably not both, may act as the effective guide means during the indexing operation.

The reference disc 42 rests upon the upper surface of the plate 40 beneath the pivoted bar 41 and is preferably made of a thin plastic film which is transparent, circular and provided with an enlarged central hole 48. A plurality of reference marks, such as the small circles 49, are printed on the face of the disc at spaced intervals near the periphery thereof. The reference circles 49 may vary in relative sizes so that, in use, a desired accuracy of letter spacing may be obtained. Thus, in using a stencil with large letters, say in the order of twenty-four points, on which the thickness of the index lines may be greater the half-circles of spacing between the index lines 18 and 19 and the circles 49 will be as large as in the case of smaller lettering, such as eight or ten points, hence the same high degree of accuracy will be obtained for all lettering.

Each of the reference circles 49 has an identifying numeral 50 associated therewith which is printed on the disc so that each numeral is radially inward from the reference circle to which it refers. An identifying numeral 50 may be such that it will indicate that its associated reference circle 49 is to be used with lettering having the same or nearly the same point size as the numeral. Thus, the reference circle 49 which is labelled "18" may be advantageously used with letters ranging in size from 17 to 19 points.

Pivoted bar 41 is so constructed that it will perform various functions depending upon which of two methods of operation is followed. Thus, the bar 41 may serve as a clamp to secure the base plate 40, the reference disc 42 and itself into a single unit or it may be so adjusted that it will cause the reference disc 42 to adhere to its underside so as to move therewith when the bar is oscillated about its pivot and between stops formed by post 43 and screw 44.

As embodied, the pivoted bar 41 is journaled on a collar 51 which is fixed on the upper surface of the plate 40 near the center thereof by a screw 52. The screw 52 projects upwardly through a hole in the bar 41 and is provided with a washer 53 and a thumb nut 54. Thus when the nut 54 is loose the bar is free to rotate on the collar 51. One end of bar 41 is slotted, as at 55, said slot spanning the screw 44 but being small enough to prevent the bar from passing beyond the head of the screw 44. The screw 44 is adjustably threaded into the stop post 43 and may be fixed in any desired adjustment by a set screw 56. The stop post 43 is secured to the base plate 40 as by a screw 57.

Means are provided for temporarily securing the pivoted bar 41 and the reference disc 42 to each other during one method of operation. As embodied, the underside of the bar 41 is provided with a strip of plastic material 58 which may be secured thereto as by cement. The plastic material 58 should have as one of its characteristics the property of being moderately sticky or "tacky" towards the material composing the reference disc 42. Thus, if the bar 41 is urged against the reference disc 42 with sufficient pressure the latter will adhere to the bar until it is pried loose.

Operation

Assuming that the word to be photographically composed to fit exactly a given distance is the name "HIPTON," the operator first places the indexing device 26 in the guide member 22 with its lower edge in contact with the bottom of the guideway 23. The "spacing grade" or scale member 27 is then placed in the guideway 25 of the guide member 22 so that one of the divisions on the line 30, such as the division labelled number "5," falls centrally adjacent the cut-out 45 of the indexing guide 26. See Figure 7. The division number "5" was selected, either by experienced judgment or by consulting a table of values, as one which will give the ideal spacing between the letters of the particular stencil used. This number may, if desired, be printed on each of the stencils.

Assuming that the disc 42 is already loose from the bar 41 it is now shifted so that an appropriate reference circle 49, such as the one labelled number "18," is centered under the division number "5" on the line 30. The thumb nut 54 on the bar 41 is now tightened, thus fixing the position of the reference circle number "18" with respect to the base plate 40.

The indexing device 26 is now set and ready for a trial run to determine the length of the word "HIPTON" as composed with this setting. Replacing the scale member 27 in the guide member 22 with the stencil 10, as shown in Figure 8, and placing the apparatus on the photosensitive paper 20 the letter "H" on the stencil is then positioned so its left side is in line with a temporary reference line 60 which may be marked on the paper 20. With the stencil stationary, the indexing device is moved so that its reference circle number "18" is centered under the right hand index line 19 of the letter "H."

Holding the indexing device stationary, the stencil is now shifted so as to bring the letter "I" into its proper place next to "H." This is accomplished by centering the left hand index line of the letter "I" over the reference circle on the indexing device. Care should be taken in the various movements of the stencil and the indexing device in the guide member 22 so that each is maintained in contact with the bottom of its respective guideway 25 and 23. The next step is again holding the stencil stationary while the indexing device is moved to the right to bring its reference circle under the right hand index line of the letter "I."

The remaining letters of the word "HIPTON" are spaced off by repeating the alternate shifting of stencil and indexing device in the manner just described for the letters "H" and "I." The operator then marks or notes the total length of the word "HIPTON" as indicated at 61 in Figure 9. Comparing this distance 61 with the distance 62 which the word is supposed to fill, it is found that the desired distance 62 is greater by fifteen units or points, as the case may be, than the trial distance 61. If desired, the points scale 23 on the spacing grade may be used to measure the difference between the two distances involved.

From the above it is obvious that the letters of the word "HIPTON" must be spaced further apart by a total of fifteen points to meet the required condition of space filling. Noting that the word "HIPTON" has five spaces the operator divides the fifteen points additional space to be filled by five. The resulting figure of three points is, therefore, the distance to be added to each trial run space so as to justify the word to fit the

required space. Readjustment of the reference circle number "18" may now be made so as to incorporate exactly the necessary three additional points per space in the step by step procedure of photographically composing the word "HIPTON" in a final letter-exposing run of the apparatus.

The stencil **10** is removed from the guide member **22** and the scale **27** substituted therein. See Figure 10. The reference disc **42** is manually loosened from the pivoted bar **41** after the latter is unclamped by partially unscrewing the thumb nut **54**. Disc **42** may then be moved relative to the base plate **40** until the reference circle number "18" becomes centered under the division number "8" on the line **30** of scale member **27**. The disc is then re-clamped in this position. Division number "8" on line **30** was used because it is the sum of the trial run setting of the reference circle, which was "5," and the additional three points needed to justify each space in the word whereby it will fill the required space.

The new position of the reference circle is such that when the letter spacing operation takes place it can be moved across the index lines **18** and **19** of the stencil at a level where the said lines are further apart by a distance of three points than at the level where the reference circle moved across them during the trial run.

After the stencil is replaced in the guide member the operator may now make the final photographic run of the apparatus. The step by step procedure is the same as that already described in connection with the trial run except that after each letter has been placed in position it is exposed to a light source to record its latent image on the photosensitive paper **20**.

It may be noted here that although the trial run of the apparatus was described as one in which the position of the first and last letter of the selected word was merely marked and measured it is obvious that this trial run operation could be performed partially or wholly by photographic means and the resulting word measured after development of the exposed image.

If the trial run of the apparatus for a desired word gives a word length which is longer than the space in which it has to be placed the calculated correction, in points, if desired required for each space between letters is subtracted from the value on the scale **29** to which the reference circle was initially set for the said trial run. Thus, if the reference circle was initially set at division number "5" and the point distance correction necessary for each space is two points the new setting for the reference circle should be 5 minus 2 or division number "3" on the scale **29**. When thus set the final composing run of the apparatus will place the selected word in a space which is less than that given by the trial run.

If desired, the justifying of a word or line of text may be accomplished by a different method of adjusting and manipulating the apparatus. In this second method, the pivoted bar **41** on the indexing device **26** is used as a lever with a selected limited motion rather than as a clamping means. See Figures 11 to 15. The procedure in this method is the same as that already described for a trial run up to the step where the setting of the reference circle on the indexing device has to be changed to suit the conditions to be met for the final photographic run of the apparatus.

Assuming again that the word to be justified is "HIPTON," and that a trial run has been made as already described and illustrated in Figures 7, 8 and 9, the next step is to readjust the indexing device so that each time a space between letters is gauged on the final run an additional distance of three points is incorporated. This readjustment of the indexing device **26** consists in first loosening the thumb nut **54** so that bar **41** is free to swing on its pivot **51**, then loosen set screw **56** so that the stop screw **44** may be adjusted. It is to be borne in mind that the reference disc **42** is now attached to the underside of the bar **41** by the adhesive strip **58**.

Next, place the scale member **27** in the guideway **25** so that the points scale **28** is over the reference circle number "18." Adjustment may then be made of the stop screw **44** so as to permit the bar **41** to swing between the stop post **43** and the head of the stop screw **44** a specific distance. In the case in point this distance should be such as will shift the reference circle laterally a distance of three points. After securing the adjustment of the stop screw **44** by its set screw **56** the indexing device may be used for composing the word "HIPTON" photographically so as to fit within a given distance.

Placing the stencil in the guideway **25** so the letter "H" is at the desired position on the photosensitive paper **20** the letter is exposed to a light source. Holding the stencil stationary and the bar **41** against the head of the screw **44** the indexing device is moved to bring the reference circle number "18" under the left hand index line of the letter "H" as shown in Figure 11.

Holding both the indexing device and the stencil stationary the bar **41** is moved to a position against the stop post **43** as shown in Figure 12. The reference circle is now a distance of three points to the left of the left hand index line of the letter "H." Next, the indexing device is moved to the right so that the reference circle is centered under the right hand index line of the letter "H" as shown in Figure 13. Following this, the bar **41** is swung from the stop post **43** to the head of screw **44**, as shown in Figure 14, thus bringing the reference circle a distance of three points to the right of the right hand index line of the letter "H" and in the correct position for gauging the position of the following letter.

From the foregoing and a comparison of the Figures 11 and 14 it will be seen that the reference circle has moved from a left hand index line of one letter to a corresponding position for the following letter and that the distance it was moved is equal to the trial run distance as measured between the left hand right hand index lines of a letter plus a justifying distance of three points as provided by the swing of bar **41**.

To justify a word by the method of operation just described where the given space in which to fit a word is less than the space taken up by the trial run the procedure is the same except that the starting position and sequence of movements of the bar **41** is just the opposite to that shown in Figures 11 to 15. Thus, where the bar **41** is shown as against the head of stop screw **44** it should be against the stop post **43** and vice-versa throughout the steps of the sequence. This serves to subtract rather than add the corrective distance to the trial run spacing of the letters.

The invention in its broader aspects is not limited to the specific parts, steps, constructions, arrangements, processes, combinations and mechanisms shown and described but departures may be made therefrom within the scope of the accompanying claims without departing from the principles of the invention and without sacrificing its chief advantages.

What is claimed is:

1. In phototypographic apparatus for photographically composing textural matter, means for varying the spacing of the text comprising the combination of a guideway, an index member movable along the guideway having an index adjacent the guideway, a stencil in conjunction with the index member, means for locating the index towards or away from the guideway, a spacing guide comprising a transparent member having a slanted line thereon, laterally movable in the guideway with respect to the index member, said slanted line being provided with uniform scale divisions thereon and serving to gauge the proper location of the index with respect to a line parallel to the guideway whereby said index may be adjusted with respect to the stencil to vary the spacing of the characters, said index being movably mounted on the index member

by means of a pivoted disc, and means for limiting the pivotal movement of the disc.

2. In phototypographic apparatus, the combination of claim 1 in which the index is movably mounted on the index member by means of a transparent member which can be moved towards and from a line parallel to the guideway.

3. In phototypographic apparatus, the combination of claim 1 in which the spacing index is carried by a transparent disc loosely pivotally mounted on the index member, a second pivoted member has limited pivotal movement on the index member, and means are provided for temporarily securing the transparent disc to the second pivoted member in the desired spaced relation to a line parallel to the guideway.

4. A phototypographic indexing member to be moved laterally for positioning character members in a predetermined position and comprising a base member, a transparent member positioned on the base and having at least one index thereon adjacent one edge thereof, said transparent member being shiftable toward and away from the line of movement of the base member, and means for securing the transparent member and its index in a definite position with respect to the line of lateral movement, said transparent member being loosely mounted with respect to a pivot carried by the base member, and shiftable with respect to the pivot, and a pivoted member mounted on said base provided with means for variably limiting the pivotal movement of the pivoted member and other means for securing the transparent member to the pivoted member whereby the transparent member may be shifted toward and from the line of lateral movement of the base member and may be pivotally moved to a predetermined extent by movement of the pivoted member.

5. A phototypographic indexing member according to claim 4 in which the transparent member is loosely mounted with respect to a pivot carried by the base member, is shiftable with respect to the pivot, and a pivoted member is mounted on said base provided with means for variably limiting the pivotal movement of the pivoted member and other means for securing the transparent member to the pivoted member whereby the transparent member may be shifted toward and from the line of lateral movement of the base member and may be pivotally moved to a predetermined extent by movement of the pivoted member.

6. A phototypographic process which comprises positioning a linear series of characters one at a time in exposure position, each of said characters having a pair of uniform index members at least one of which is slanted to the linear series of characters, shifting the linear series in accordance with the desired series of characters and with the spacing indicated by their respective index members as measured by a laterally movable index member at a fixed distance from the edge of said linear series as said laterally movable index member is moved with reference to the pair of index lines for a given character, measuring the length of line so produced with respect to the desired length of line, shifting the laterally movable index member with respect to its line of lateral movement so that it will coincide with a different portion of the slanted index member associated with each character, and again shifting the linear series of characters, measuring their spacing with the laterally movable index member as it intersects the index members associated with the individual characters, and photographically exposing the several desired characters as they are so positioned over a sheet of sensitized material.

7. A phototypographic process which comprises positioning a linear series of characters one at a time in exposure position, each of said characters having a pair of uniform index members at least one of which is slanted to the linear series of characters, positioning a given character in the desired starting position, laterally shifting the single index member to intersect with one index member of the pair at a given distance from the character, laterally shifting the linear series of characters until the other index of the new pair intersects with the single index member at a same distance from the character, and repeating the steps until the desired series of characters has been so treated, measuring the error in justification in the length of line of characters, moving the single index toward or away from the line of characters in accordance with such error to compensate for the error, and again shifting the linear series of characters, measuring their spacing with the repositioned single index member as it is successively associated with the index members for the several characters and photographically exposing the several desired characters as they are so positioned over a sheet of sensitized material.

8. A phototypographic index member for use in conjunction with a phototypographic stencil having reference indicia thereon and with a guide member having a guide surface parallel to said stencil, said index member comprising a base plate having at least one straight edge for engagement with the guide surface on the guide member parallel to the stencil, a transparent disc mounted on the base plate adapted to overlay one edge of the stencil and movable relative to the straight edge on the base plate, and reference indicia on the transparent disc to intersect the reference indicia on the edge portion of the stencil beneath the transparent disc, said point of intersection being selectively varied by movement of the transparent disc relative to the straight edge on the base plate.

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