No. 700,330. Patented May 20, 1902.

M. C. INDAHL.

MACHINE FOR COMPOSING TABULAR MATTER.

(Application filed Oct. 24, 1901.)

(No Model.) 2 Sheets—Sheet 1.

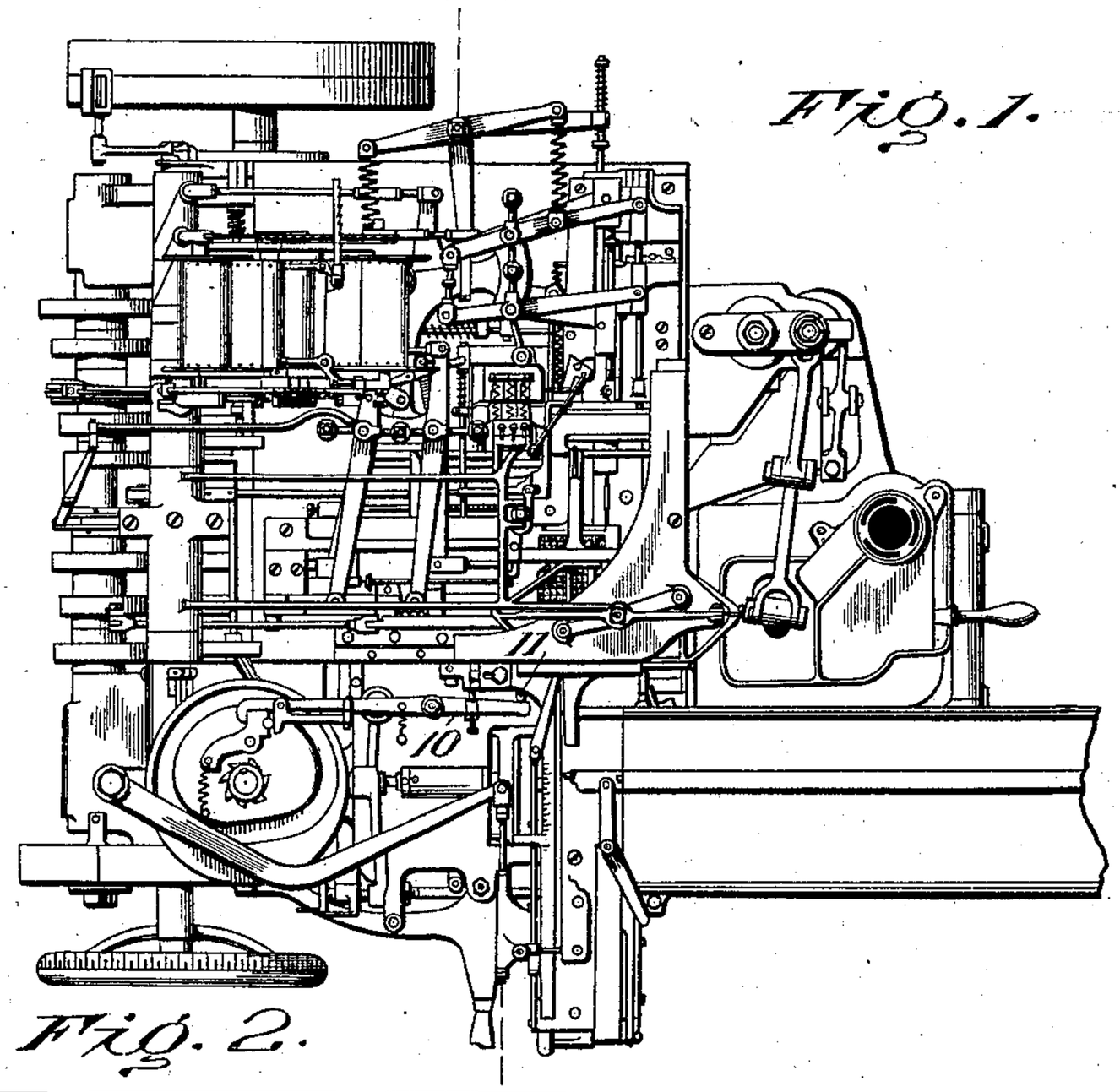
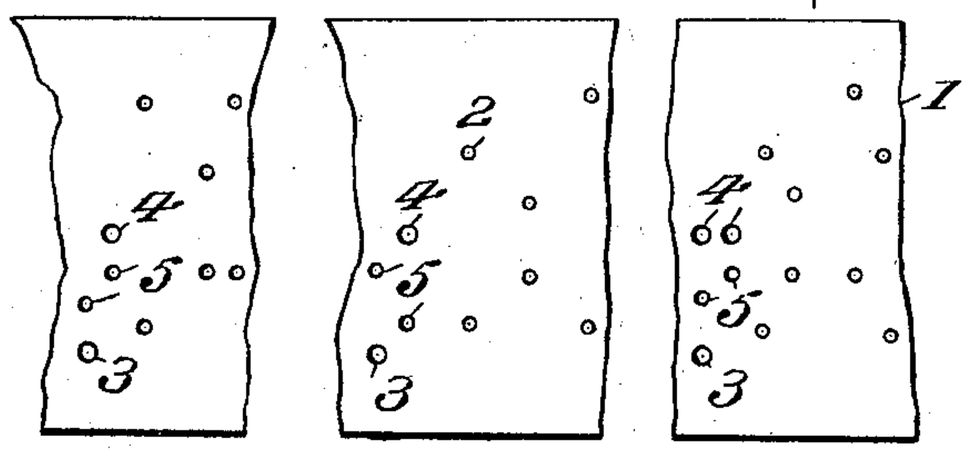


Fig. 1.

Fig. 2.



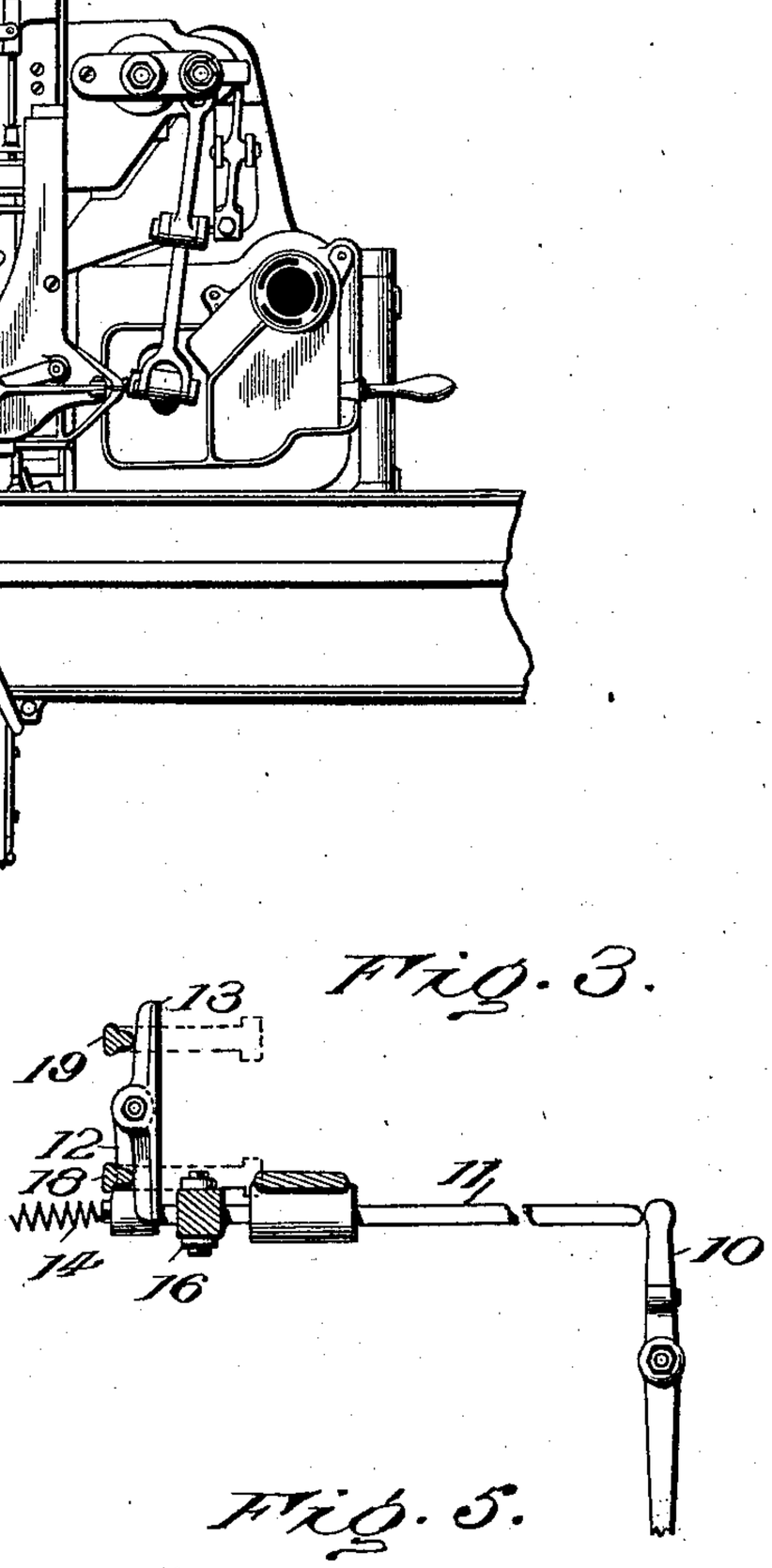


Fig. 3.

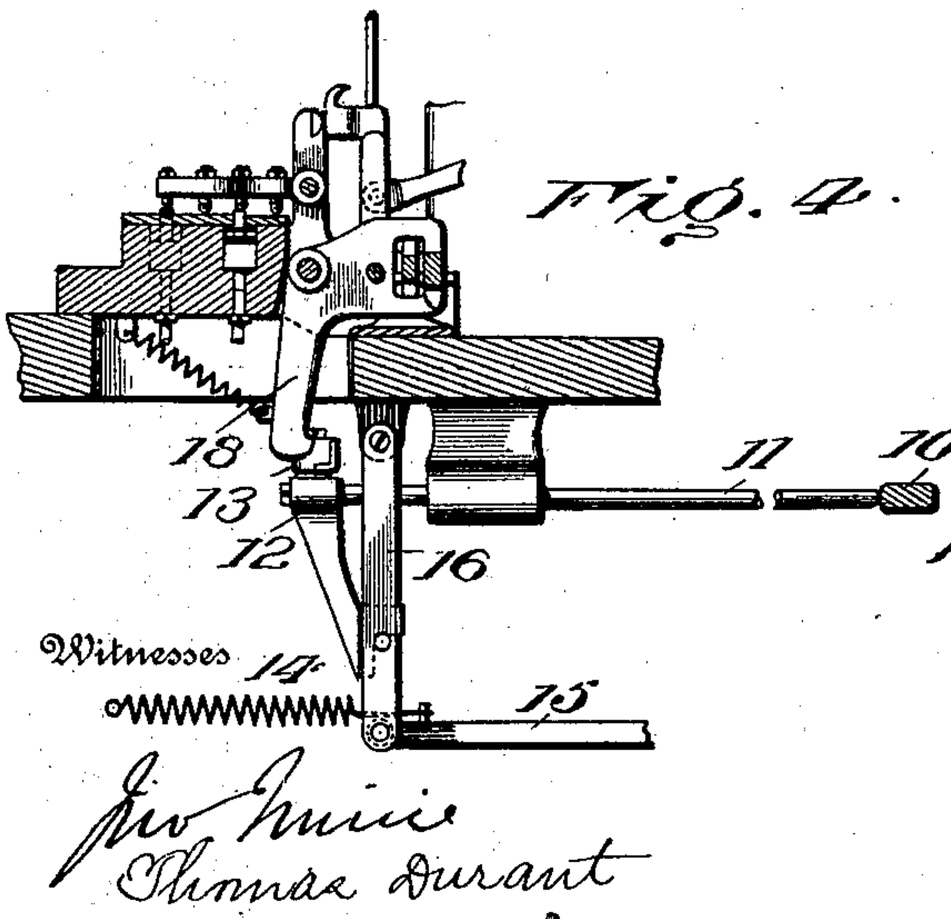


Fig. 4.

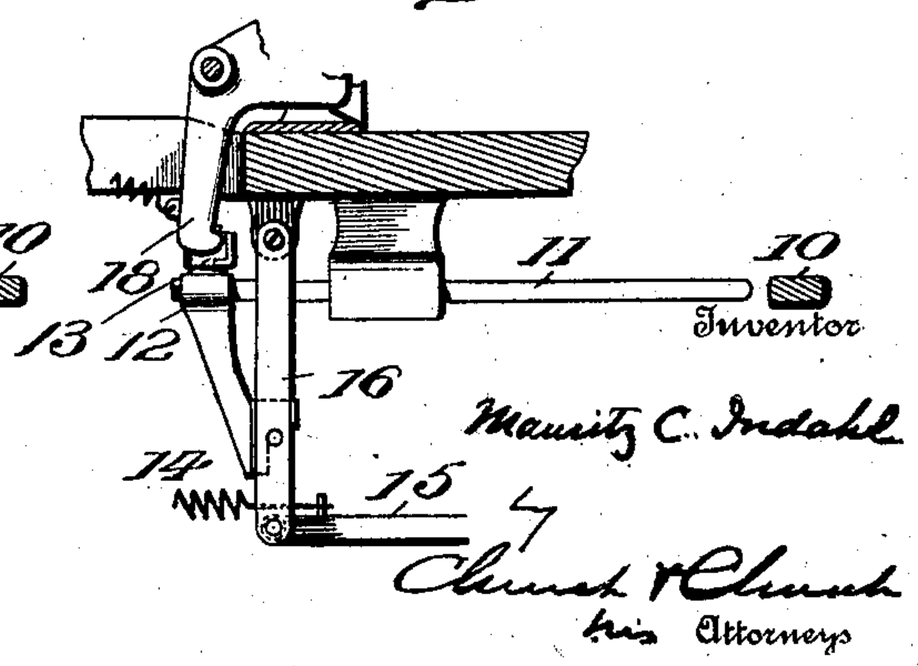


Fig. 5.

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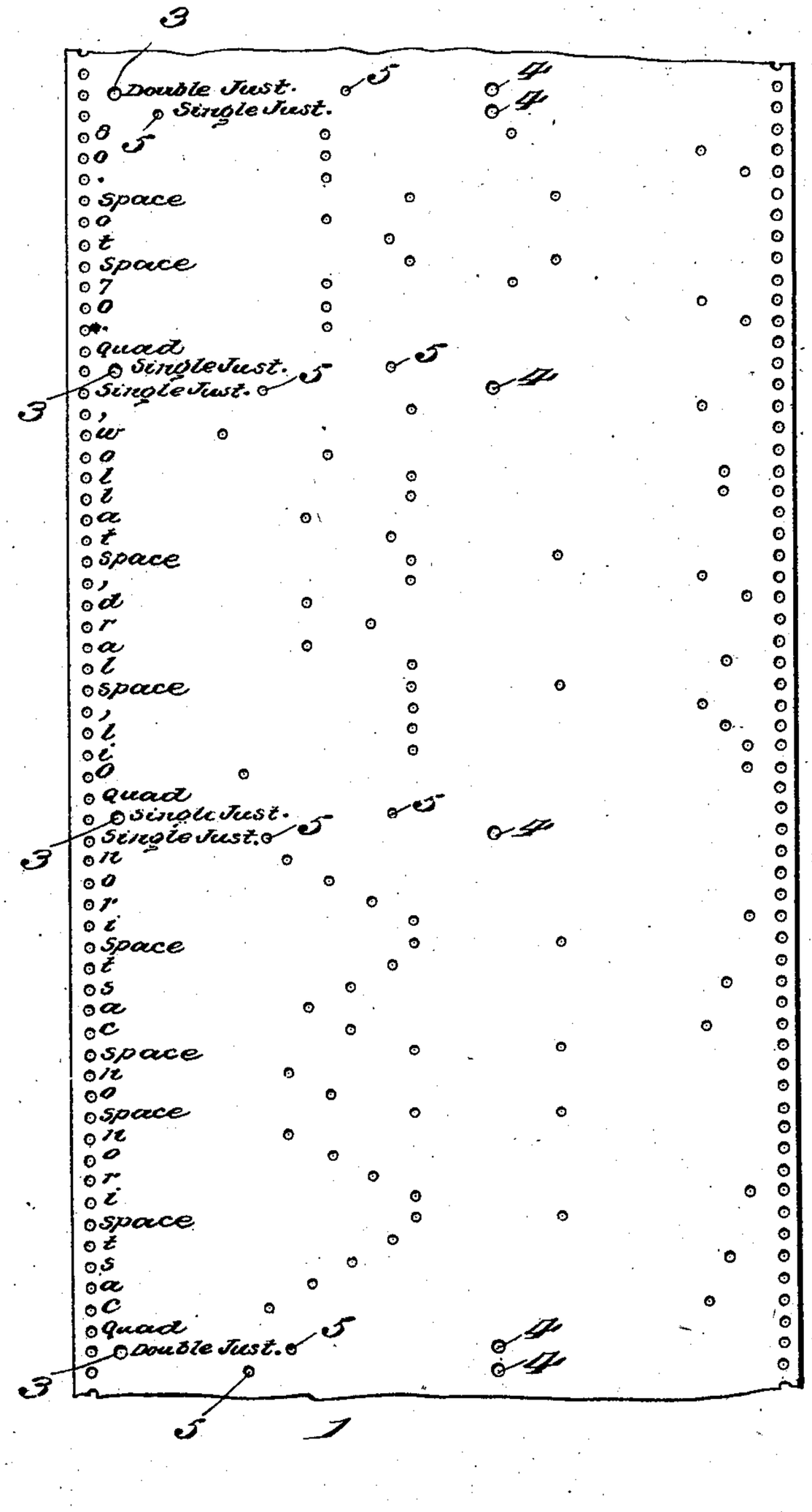
Fig. 6.



Witnesses

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UNITED STATES PATENT OFFICE.

MAURITZ C. INDAHL, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR, BY MESNE ASSIGNMENTS, TO LANSTON MONOTYPE MACHINE COMPANY, OF WASHINGTON, DISTRICT OF COLUMBIA, A CORPORATION OF VIRGINIA.

MACHINE FOR COMPOSING TABULAR MATTER.

SPECIFICATION forming part of Letters Patent No. 700,330, dated May 20, 1902.

Application filed October 24, 1901. Serial No. 79,848. (No model.)

To all whom it may concern:

Be it known that I, MAURITZ C. INDAHL, a subject of the King of Sweden and Norway, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Machines for Composing Tabular Matter; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and to the figures of reference marked thereon.

This invention relates to improvements in or pertaining to the production of justified lines of type in accordance with the Lanston system, and is designed to simplify and facilitate the composition or setting up of tabular or like matter by forming sectionally-justified lines of uniform length and associating them in column form, so that the several justified sections will fall properly in their respective columns.

To this end the invention consists in the employment of a record strip or controller having, in addition to the usual or normal character, space and justification perforations or equivalent means of control, an additional or special line-signal intermediate the representations for contiguous complete lines, such record strip or controller being used in connection with a galley-trip (or equivalent means for effecting the transfer of the completed line) inoperative to the normal justification-perforations or its equivalent, but responsive to said additional or special means of control, whereby each section of the line may be justified in the usual manner and the several sections associated together to form a complete line before the latter is transferred to the galley.

The invention further consists in the novel construction of the galley trip mechanism, whereby it is rendered inoperative to a single justification-wedge designating-perforation and operative to the combined action of two of said designating perforations.

In the accompanying drawings, illustrating the preferred embodiment of the present invention, Figure 1 is a top plan view of an organized machine, illustrating the invention. Fig. 2 represents a section of the improved record strip or controller. Fig. 3 is a top plan view, and Fig. 4 is a side elevation, of the galley-trip mechanism. Fig. 5 is a top plan view illustrating a modification of the galley-trip mechanism. Fig. 6 represents a section of a controller embodying a sectionally-justified line of composition.

Like numerals in the several figures indicate like parts.

According to the Lanston system as at present generally practiced the type forming and assembling machine, (Patent No. 625,998,) of which a top plan view is seen in Fig. 1, is governed in the selection of characters, the widths of bodies, and the transfer or removal of completed lines by a record strip or controller 1, the product of a composing-machine or keyboard of the character disclosed in Patents Nos. 628,620 and 654,115, to which reference may be had for a more detailed description.

It is sufficient for present purposes to direct attention to certain features of the system with which the present improvements are more directly connected. Between contiguous sections of the record-strip containing the series of perforations or representations 2 corresponding to the successive characters, spaces, &c., entering into the composition of each line are arranged the justification-perforations for establishing the sizes of the selected type for purposes of justification. These justification-perforations are arranged in two independent series or sets, each of the latter containing a selecting signal or perforation 3 or 4 and a measuring signal or perforation 5. The selecting designations 3 4 determine to which one of two adjusting devices, such as wedges, the accompanying indicated adjustments 5 are to be applied, and as both adjustments are necessary for accurate work it is requisite that these selecting

designations 3 and 4, Figs. 2 and 6, should be present between each justified section or line. Fig. 2 is but a diagrammatic view of the controller, and Fig. 6 represents a practical example of the signals for a complete line as arranged for a table of coefficients. In its passage through the casting-machine (Patent No. 625,998) the justification-perforations operate in advance of the line-perforations to which they pertain. Hence they come into action immediately after the completion of the preceding line, and to them is assigned the additional function of setting in motion the mechanism whereby the previously-formed line is removed and assembled in column form in the galley. This is accomplished by causing the lever which moves the justification-wedge into operative relation with the adjusting devices and responding to the selecting designation or perforation 3 or 4 to actuate the trip for the galley action. It follows from this arrangement that the act of setting or adjusting the justification for one line or any section thereof is accompanied or immediately followed by the transfer or removal of the matter previously set up or composed, thus rendering it impossible to separately justify different sections of the same line. To permit this very desirable operation to be performed, the galley-starting mechanism or the means employed for effecting the removal of a complete line is rendered inoperative to the normal justification-perforations 3 4 and responsive to a special line-signal, which latter may either be independent of the justification-signal for the succeeding line or first section thereof or, preferably, forms a component part of said justification-signal, thereby preventing an idle revolution of the driving-shaft.

In the preferred form of embodiment illustrated herein the record strip or controller is composed as heretofore except in one particular, and that is the introduction between the type signals or perforations 2, pertaining to each line of matter, of the special line-signal, comprising in this instance the two justification-wedge designating-perforations 3 4 occurring in the same transverse line or section of the record-strip. This special line-signal (3+4) may stand alone at the end of the line, the signals 3 and 4 being repeated singly in succession for effecting justification, or it may form a component of the justification-signals, as its operation on the casting-machine will be to set both justification-wedges to the same degree, so that when followed by the usual second signal 3 or 4 the wedge corresponding thereto will be readjusted to the designated position. Thus the first section of each line will be preceded by the special line-signal and the justification-signal, as 3+4, followed by 3, then 4, or 4 then 3 or 3+4 followed by 3 or 4, and each following section of the same line by the justification-signal 3 4 or 4 3, the special line-signal being again repeated in the interval between this and the next succeeding line.

No change in the construction of the keyboard or composing machine of Patents Nos. 628,620 and 654,115 is required for the production of the special line-signal referred to. All that is necessary is for the operator at the conclusion of a line of composition to designate the justification by first pressing the proper key in one row of justification-keys (corresponding to wedge designation 3 or 4) and follow this by simultaneously pressing corresponding keys in both justification-rows, indicating the degree of movement required for the remaining justification-wedge, (represented by 3 or 4.)

The operator at the keyboard or composing-machine is of course provided with a scale indicating the lengths of the various sections into which the line is to be divided or separated for justification, and with the exception of the first section, where the special line-signal is introduced, he proceeds to justify each section in the same way lines have heretofore been justified—that is, by successively actuating a key in each row of justification-keys, thereby producing the single wedge designating signals or perforations 3 4 in succession, each of the latter being accompanied by its position designating signals or perforation, as usual; but this is not alone sufficient to produce the desired result of sectional justification of the line so long as the justification signals or perforations 3 4 of the record-strip separately exercise control over the galley-trip mechanism of the casting-machine, as in Patents Nos. 625,998 and 674,374, for in such event the occurrence of the usual justification signals or perforations 3 4 at the beginning of each section of the line would set in motion the galley mechanism and remove the preceding section instead of permitting the several sections to be set up as a single line. Hence it becomes necessary to employ as a galley-trip or equivalent means for effecting the removal of the completed matter one which shall be neutral to the usual or intersectional justification-signals 3 4 and responsive only to the special line-signal 3+4, and this, too, without interference with justification. This can be accomplished in a variety of ways; but the means shown in Figs. 3 to 5 are preferred, as involving the least change in existing commercial structures.

The galley starting or tripping mechanism referred to is substantially the same as that illustrated in Patent No. 674,374, and comprises the galley-trip lever 10, longitudinally-movable shaft 11 for engaging said lever, cross-head 12, secured to said shaft and carrying pivoted lever 13, spring 14, acting through shaft 15 and link 16 upon cross-head 12 to retract shaft 11, and the justification-designating levers 18 19, engaging lever 13 on

opposite sides of its pivot, said levers 18 19 each operating upon one of the justification-wedges to bring it into operative relation with its adjusting mechanism, as fully set forth in Patent No. 625,998. Each lever 18 19 is controlled by a piston whose cylinder communicates with a port in line with the perforation 3 or 4, so that when the record-strip is in position to present either of said perforations opposite its port the corresponding lever 18 or 19 will be rocked on its pivot.

In the machines of the prior patents referred to the parts were so constructed and related that a movement of either one of the levers 18 19 would effect a longitudinal movement of shaft 11 sufficient in extent to trip the galley or set it in motion, and thereby effect a transfer of the type in the line-channel. As before explained, this precludes sectional justification of the line, as the setting of the justification devices for any section, as well as at the beginning of a new line, would operate to remove the previously justified and composed section from the line-channel. To prevent such action and at the same time place the galley-trip under the control of the special line-signal, (perforations 3+4,) the parts are so arranged and proportioned as to provide an interval in the line of communication between said levers 18 19 and the trip-lever 10 sufficient in degree to permit motion of either lever 18 19 without setting in action the galley mechanism and requiring the combined action of both levers 18 19 to produce such result. The arrangement of devices illustrated favors this change, inasmuch as the motion communicated to shaft 11 is but one-half that of each lever 18 19. Hence by providing an interval equal to one-half the throw of each lever 18 19 between the latter and lever 13, as shown in Fig. 3, or between the end of shaft 11 and trip-lever 10, as shown in Fig. 5, the movements of either lever 18 19, as controlled or produced by perforations 3 or 4 of the record-strip in effecting the justification-adjustments, will be inoperative to trip the galley mechanism, whereas a simultaneous movement of both said levers under the influence of the special line-signal 3+4, resulting in a corresponding movement of shaft 11, will result in setting the galley mechanism in operation. Although for convenience levers 18 19, forming part of the justifying mechanism of the casting-machine, are utilized for the purpose of actuating the galley-trip, it is obvious that these functions are separable, as would be the case were the levers and their actuating devices duplicated, one set operating upon the wedges and the other upon the galley-trip, and, further, that other and equivalent trip-actuating devices neutral to normal justification-signals in the record-strip and responsive to a special line-signal might be employed without departing from the spirit of the present invention.

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

1. A sectionally-justified record strip or controller for automatic type-composing machines formed or provided with a plurality of type-designating signals or perforations arranged in series, each of the latter representing a line of composition divided into sections of predetermined lengths and preceded by its appropriate justification signal or perforations, and a special line-signal intermediate adjacent series of type-designating signals or perforations, substantially as described.

2. A record strip or controller for setting up sectionally-justified lines in an automatic type-composing machine in which the type-designating signals or perforations representing a line are separated by justification-designating signals or perforations and the lines are separated by justification-designating signals or perforations and a galley-signal; substantially as described.

3. In an automatic type-composing machine governed by a record strip or controller containing justification and type designating signals or perforations serially arranged to produce sectionally-justified lines of composition, and a special line-signal intermediate adjacent lines, the combination with said record strip or controller of a galley-trip mechanism neutral to the justification action and responsive to the special line-signal, whereby each line as composed may be divided into separately-justified sections and the latter assembled into a line prior to its transfer to the galley; substantially as described.

4. In a machine of the character described for producing sectionally-justified lines of type and assembling said lines in column, the combination with the justification-designating devices and a galley-starting mechanism responsive to the combined action of said designating devices but to neither one alone, of a record strip or controller provided with means for simultaneously actuating said designating devices to start the galley mechanism at the end of a line and transfer the latter to the galley, substantially as and for the purpose specified.

5. In a machine such as described, the combination with a plurality of justification-designating levers and a galley-starting lever, of intermediate transmitting devices neutral to the movements of either designating-lever alone so far as the starting of the galley mechanism is concerned, but responsive to the joint action of said designating-levers.

6. In an automatic type-composing machine wherein the selection of type and composition and justification of the lines is governed by a record strip or controller containing designating signals or perforations, the combination therewith of a record strip or controller whose type-designating signals or

perforations are serially arranged in the order of composition, and separated into series representing successive sections and complete lines, the lines by abnormal justification-designating signals and the sections by normal justifying-designating signals, and a galley-controlling mechanism neutral to the normal justification-signals but responsive to the abnormal justification-designating signals, substantially as and for the purpose specified.

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