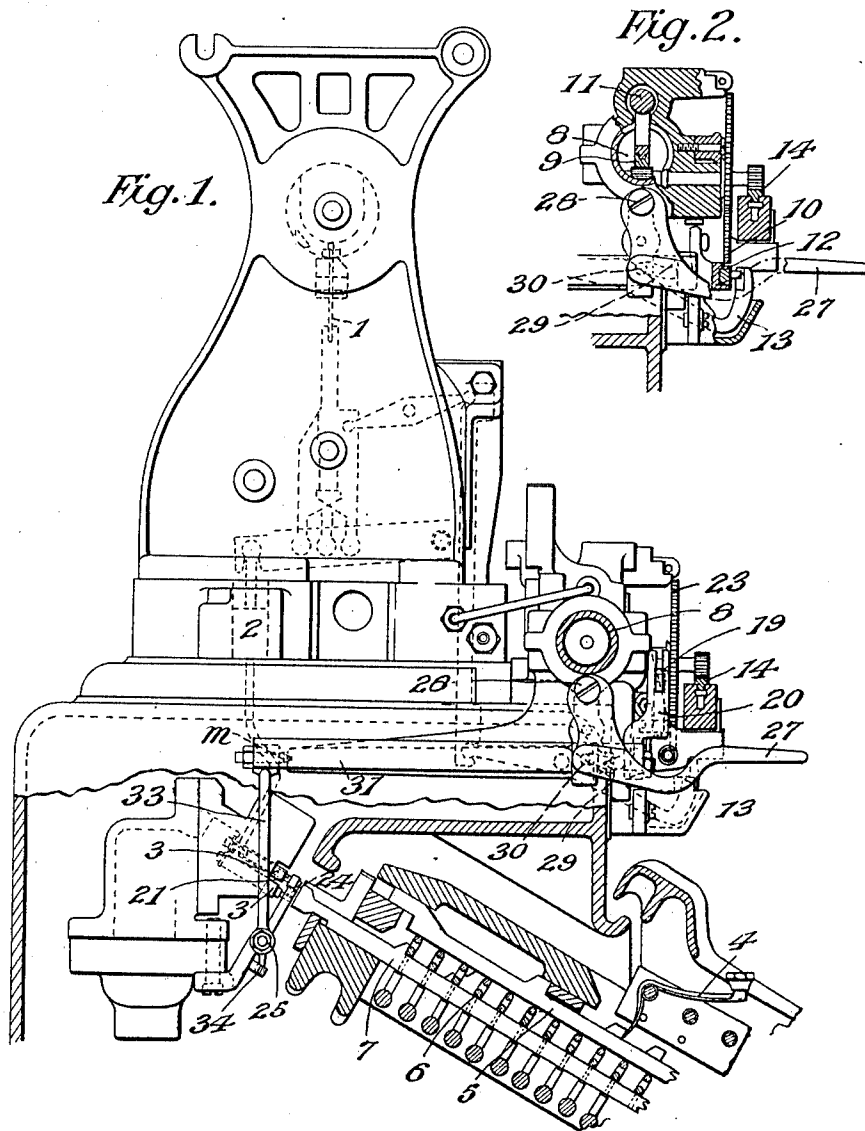


F. H. PIERPONT.
 RECORD STRIP COMPOSING MACHINE.
 APPLICATION FILED APR. 12, 1911.

1,061,561.

Patented May 13, 1913.

6 SHEETS—SHEET 1.



Witnesses

Thomas Durant
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Inventor

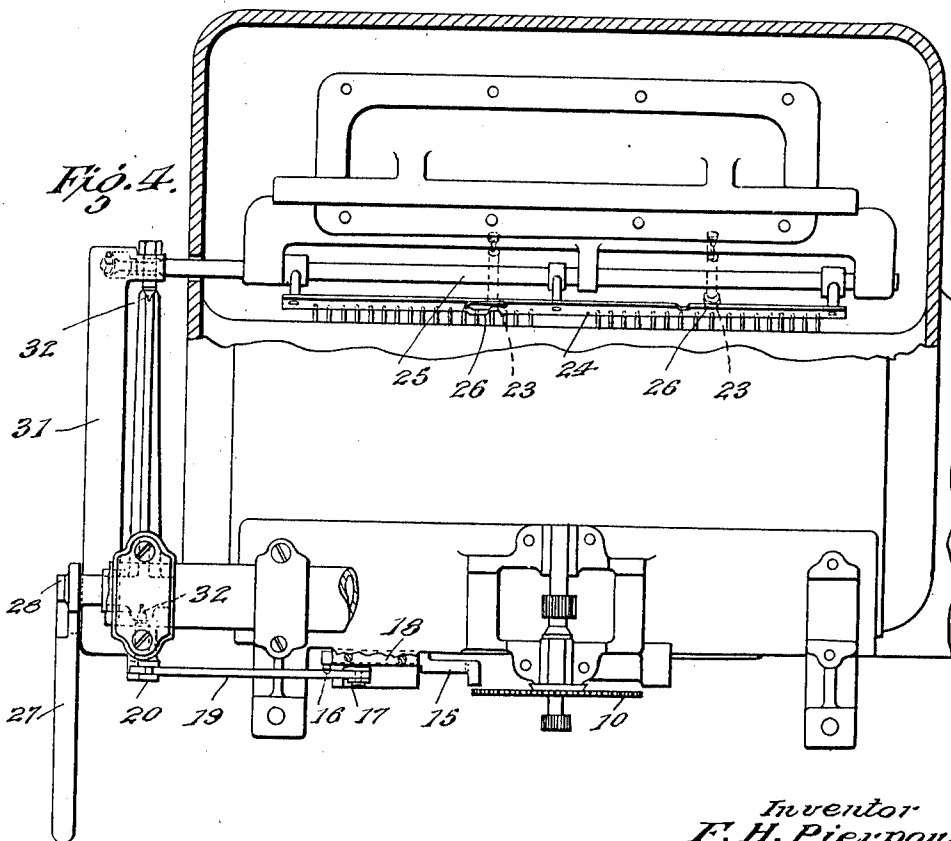
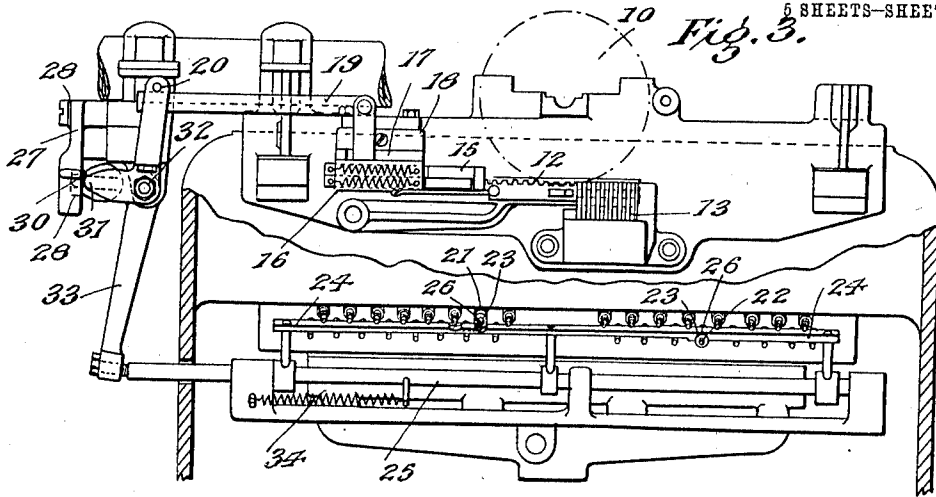
F. H. Pierpont
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5 SHEETS—SHEET 2.



Witnesses
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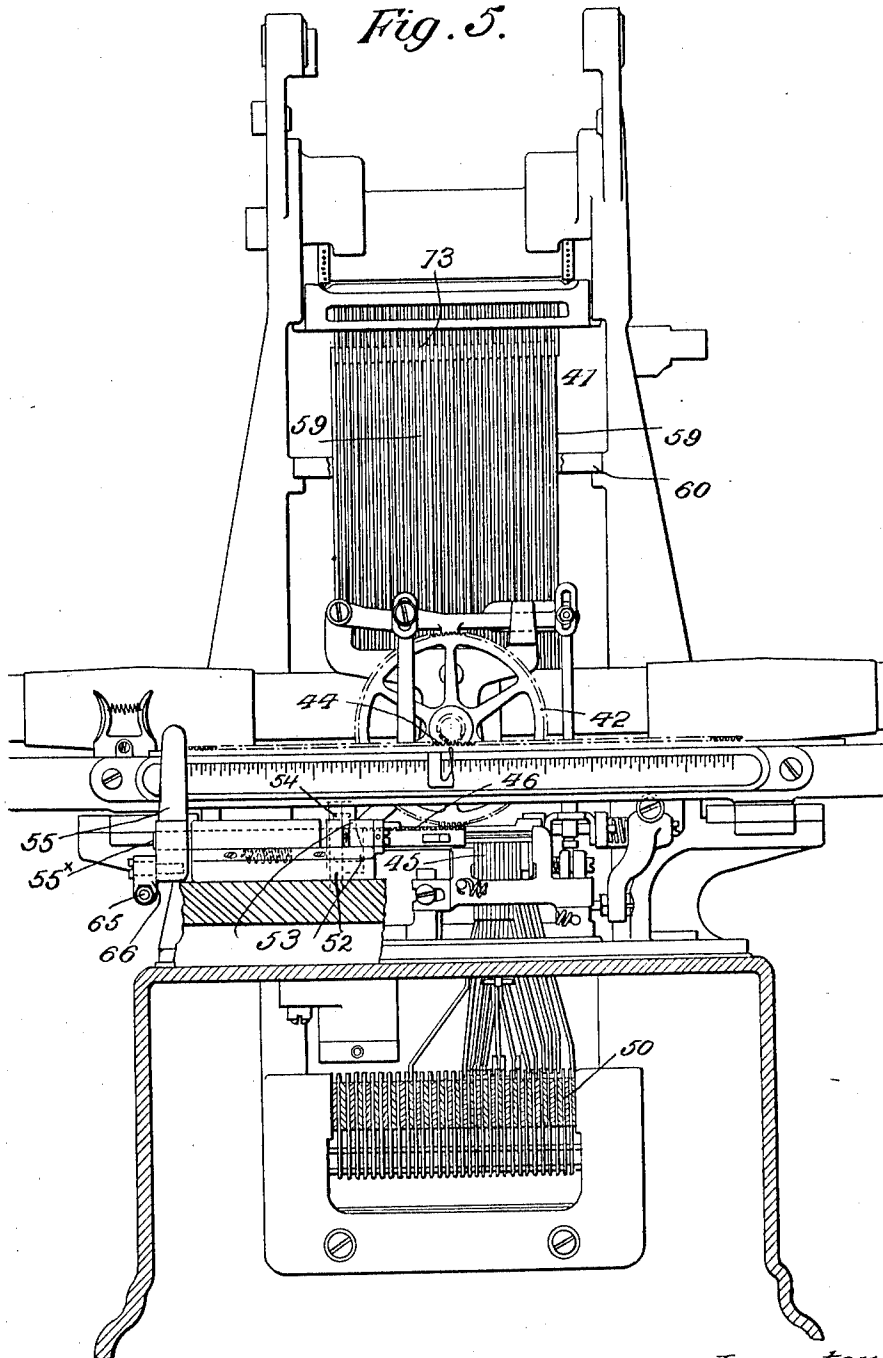
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5 SHEETS-SHEET 3.



Witnesses

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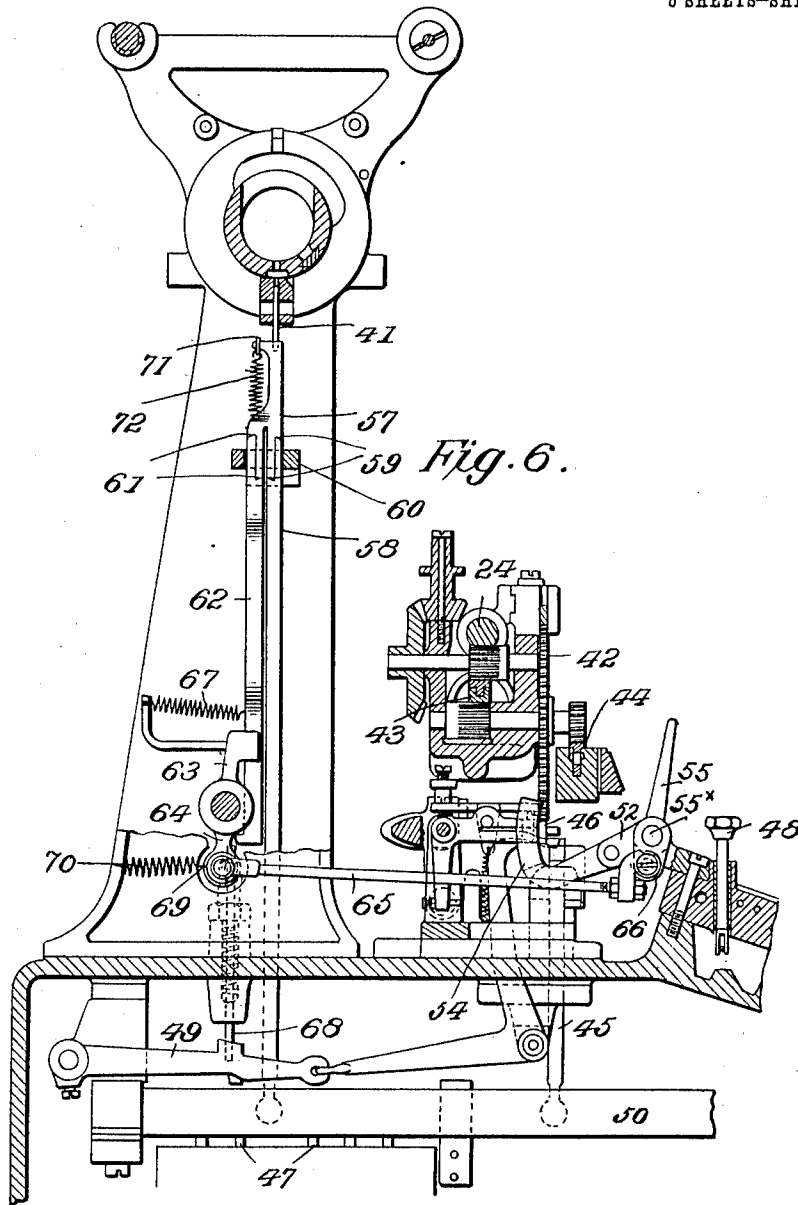
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 6 SHEETS—SHEET 4.



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Witnesses

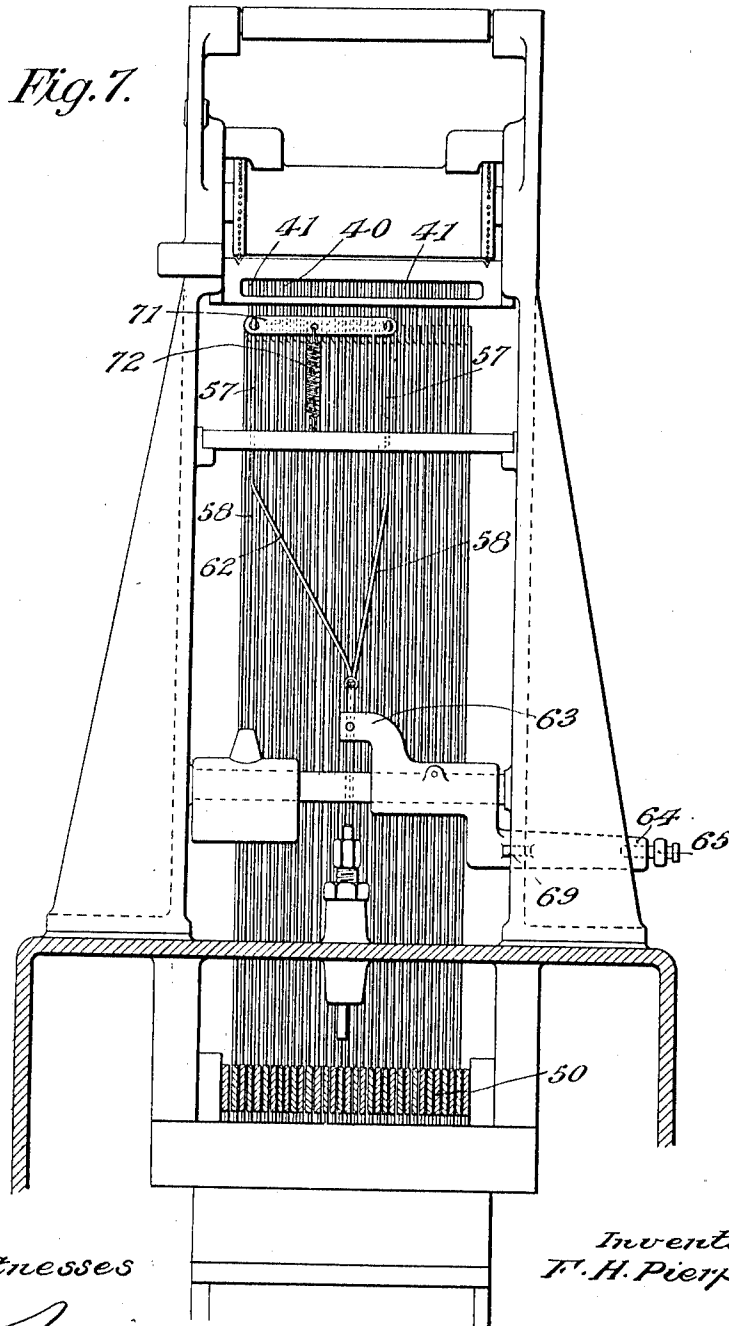
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6 SHEETS—SHEET 5.



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UNITED STATES PATENT OFFICE.

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RECORD-STRIP COMPOSING-MACHINE.

1,061,561.

Specification of Letters Patent.

Patented May 13, 1913.

Application filed April 12, 1911. Serial No. 620,605.

To all whom it may concern:

Be it known that I, FRANK HINMAN PIERPONT, a citizen of the United States, residing at Salford, Horley, in the county of Surrey, England, have invented a certain new and useful Improvement in Record-Strip Composing-Machines; 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 and letters of reference marked thereon.

The present invention relates to the production of justified lines of single types and refers particularly to a system which comprises two mechanisms or units, one for the production of a pattern or record strip which controls the other or automatic type casting unit.

It is often necessary or desirable to space out a particular syllable of a word, a word, passage or sentence as in some languages, German for example, where this is done to emphasize the particular syllable, word or passage. Heretofore it has been customary to effect this spacing or opening out of the characters by the insertion of thin quads or spaces, and as the spacing required is less than the thinnest space type that automatic type casting and composing machines are ordinarily capable of producing, the insertion of such spaces is usually effected by hand, after the matter has been cast and assembled in justified lines, and as this tends to destroy the justification, much time is consumed in reestablishing the same. If, however, the machine should be equipped to produce such thin spaces (usually two units in width) the insertion of each would consume one cycle of operations, so that the casting of the spaced-out matter would occupy double the time taken for ordinary matter. Not only would this extra time be required at the casting machine, but also at the keyboard or pattern composing machine, inasmuch as a key or equivalent signal producing device would have to be operated for each inserted space.

The perforating or record-strip composing machine upon which the pattern is prepared is equipped with line measuring mechanism upon which the normal space value of

each type signal is recorded as an aid in determining the justification fraction or signal for each line of composition as set up or composed, but the efficiency of the line measuring mechanism referred to would be greatly lessened, if not destroyed, if it were attempted to set up the spaced-type pattern thereon, owing to the fact that no means are provided for registering the extra body width of the character types composing the spaced matter, hence an independent calculation would be required to ascertain the closing point for the line and the justification fraction pertaining thereto.

Now the object of the present invention is to enable this spaced matter to be registered by the line measuring mechanism, and to facilitate the production of the spaced-type signal, to which end the invention consists, broadly; first, in providing the pattern or record strip composing machine with an auxiliary or supplemental admeasuring means or mechanism adapted for use in conjunction with the normal signal admeasuring devices, to increase the value thereof by an amount equal to the excess body width of the spaced type; and second, in coupling with the ordinary signal producing devices said auxiliary signals to produce the spaced-type-signals, in such manner that when said admeasuring mechanism is set to increase the space value of the signal producing devices the space type and spaced-type signal producing devices will be automatically coupled to act in unison.

The invention is hereinafter described as applied to a record strip preparing machine according to Letters Patent No. 944,405, dated Dec. 28, 1909.

Referring to the drawings—Figure 1 is a sectional elevation of a record-strip preparing mechanism embodying the present invention. Fig. 2 is a sectional view of part of the mechanism shown in Fig. 1. Fig. 3 is a front sectional elevation of part of the mechanism shown in Fig. 1, and Fig. 4 is a sectional plan of Fig. 2. Fig. 5 is a front elevation, partly in section, showing the improvements applied to a different variety of composing machine. Fig. 6 is a transverse vertical section of Fig. 1. Fig. 7 is a rear elevation.

Like letters of reference in the several figures indicate the same parts.

Reference is made to the specification Letters Patent No. 944,405, for a detailed description of the preferred form of embodiment illustrated in Figs. 1 to 4 inclusive. The principal parts of the said machine are:—a series of punches 1 which take part in character and justification signals; motors 2 for the punches; valves 3 controlled from keys 4 through rods 5, bars 6 and rods 7, the latter acting on valves 3; a line escapement motor 8; motor rack 9; the units wheel 10; the justification indicator rack 11 co-operating with the motor rack to position the indicator drum; the units rack 12; the series of stop bars 13; the line scale rack 14; the zero stop 15 for the units rack; and the abutment 16 for the zero stop.

The motors 2 for the punch levers and the punches are arranged in two series, each motor being controlled by one of the series of valves 3. The rods 7 act as valve controllers and the rocking rods act under the control of the key-operated bars 5 to operate the particular combination of rods 7 for the required character.

The depression of any key, to produce its signal in the pattern, projects one of the stop-bars 13 into the path of the units-rack 12, elevates the latter into engagement with the motor driven units-wheel 10, and effects also the release of said wheel from a holding pawl. The movement of the units-rack from its zero position to the projected stop-bar measures the normal space value of the signal produced and adds the same to the previously measured signal, producing an accurate registry of the total number of units occupied in a line of predetermined dimensions.

According to the present invention the record strip composing machine is furnished with mechanism whereby the extra units added to each spaced type are automatically recorded so that proper justification of the line is not interfered with and the record-strip is furnished with additional signals to control mechanism for adjusting the mold on the casting machine. Further, by this invention, existing punches on the machine are utilized for the new signals, without interfering with the normal operation of these punches, and the new signals are automatically made simultaneously with the character signals without requiring a special operation for each signal. Heretofore, also, the zero position of the units-rack has been determined by a fixed stop against which it is drawn by its spring while said rack is out of engagement with the units-wheel, and in accordance with the present invention the zero stop is movable. In the present instance the fixed or back stop 16 for the zero stop 15 of the units rack 12 is formed by the rear end

of the carrier 17 for the zero stop and according to the present invention this back stop is mounted so that it can be withdrawn or retracted the distance of two units when spaced type are to be designated and recorded, for which purpose the block 17 is mounted to slide in a guide 18 and is connected to a link 19 which in turn is connected to an arm 20. Thus when the zero stop is moved back the units-rack has a travel two units beyond normal before it encounters a particular stop bar and so each character is registered its normal width plus two units, thereby effecting a proper record for the justification of the line.

As already stated, the signal in the record-strip is produced by the two justification punches operated simultaneously with the punch or punch designating the character, and in order that these two punches may not be interfered with in their normal operation as justification punches, it is proposed by the present invention to provide means controlled by the operator for coupling them with the character punches and preferably actuated simultaneously with the mechanism for moving the zero stop.

The stems 21, 22, of the valves of the two justification punches are provided with collars 23, and in front of the valve stems is mounted a bar 24 carried on a longitudinally sliding rod 25. The bar 24 is cut away as shown at 26 so that in one longitudinal position of the bar 24 the cut away portions are in front of the collars 23 so that if the bar 24 is turned on its axis 25 the two justification punch valves will be operated and in the other position, the valve stems will be missed by the bar when it is advanced. The bar 24 is arranged in the paths of the bars 7 but clear of the valve stems 3, which are actuated by the bars so that these latter in addition to operating a valve stem abut against said bar 24 when advanced, and when the solid parts of the bar are opposite the collars on the justification punch valves said bar 24 and therefore the justification punches will be operated simultaneously by any character key. The bar 24 is moved longitudinally by its axis bar 25 which is connected to a hand-operated lever 27. The lever 27 is fulcrumed at 28 and provided with a cam slot 29 in which rides a pin 30. The pin 30 is carried by a yoke 31 mounted in bearings 32 so that when the lever 27 is depressed the yoke is turned down in its bearings and as the arm 20 for retracting the stop for the zero stop of the units-rack and an arm 33 adapted to bear on the bar 25 are both carried by the yoke 31 these two mechanisms are operated to place the spacing mechanism in operation. When the lever 27 is raised the bar 25 is returned to inoperative position by a spring 34 and the back stop 17 is returned positively.

The invention in its broader aspect is applicable to other forms of composing machines and in Figs. 5 to 7 inclusive the same is illustrated in connection with the keyboard perforator of Patent No. 828,449, dated Aug. 14, 1906, whereof 40 represents the series of punches, including the two justification designating punches 41; 42 the units wheel; 43 the motor rack; 44 the line scale rack; 45 the series of stop bars; 46 the units rack; 47 the motors, one for each punch; 48 the keys controlling said motors; 49 the rocking frame overlying and actuated by each punch lever and controlling the paper feed valve and 50 the punch levers.

In the present instance the fixed zero stop for the units rack 46 is replaced by a movable stop, provided with a plurality of gaging surfaces 53 adapted to be alternately brought into line with the units rack, to vary its position relatively to the stop bars. The two gaging surfaces vary in elevation by an amount corresponding to the number of units (usually two) to be added to the bodies of normal type to convert them into spaced type, and said gaging surfaces are conveniently formed or applied upon a block 54 reciprocating in guides transversely of the units rack at the end thereof. When registering normal type the more prominent or extended gaging surface 53 which corresponds to the original stop is maintained in position to arrest the units-rack in zero position, as heretofore; but when spaced type are to be registered, the lesser gaging surface is presented, with the result that the units-rack is permitted to move beyond the normal zero position a distance corresponding with the plus value of the spaced type, say two units, so that when advanced to contact with the stop bar, as upon the depression of a key, the line measuring mechanism will be advanced an amount corresponding with the normal space value of the signal produced plus a uniform amount as determined by the difference in the elevation of the two gaging surfaces. As shown the mechanism for controlling the position or alternate presentation of the two gaging surfaces 53 includes an actuating lever 55 fast on a shaft 55^x supported in bearing on the frame and provided with an arm 52 whose outer or free end is coupled with block 54.

As in the previous example the two justification designating punches 41 are employed in conjunction with the type designating punch or punches to produce the spacing out signal. The operating rods of these punches, through which motion is transmitted from the punch levers to the punches, instead of being integral as before are formed in two sections 57, 58, provided with engaging shoulders 59 where they pass through the guide 60. The upper or punch-

carrying section 57 of each rod is also provided with shoulders 61 in position to engage a rod 62, the arrangement being such that motion can be transmitted to the punch through either rod 58 or 62. The lower ends of rods 62 are brought together in a movable guide 63 pivotally supported on the frame and provided with an arm 64 connected by a link 65 with an arm 66 of lever 55. Guide 63 is slotted at one side for the reception of rods 62 and is provided with a spring 67 connected to said rods and operating to maintain them in position within said slot, at the same time permitting longitudinal movement of the rods within said guide. The spring actuated pin 68 engaging rocking frame 49 to insure the return of the punch levers as heretofore, is, in the present instance, extended through the frame in lateral alinement with the lower ends of rods 62. Actuating arm 64 of guide 63 is provided with a shoulder 69 for engaging the frame and with a spring 70 tending to maintain said shoulder in engagement with the lower ends of rods 62 on one side of the path of movement of pin 68 and with block 54 in position to present the more prominent or normal gaging surface 53 in the path of the units-rack.

As the separation of the operating rods of the two justification designating punches 41 removes the punch carrying section 57 from the return action of the spring actuated return pin 68 said sections 57 are provided with an auxiliary return mechanism in the form of a bar 71 connected at each end to one section 57 and at an intermediate point provided with a retracting spring 72. When the parts are in normal position guide 63 is held by spring 70 with its shoulder 69 seated on the frame, at which time rods 62 are removed from the path of pin 68 and lever 55 is tilted to present the more prominent gaging surface 53 of block 54 in the path of units rack 46. Under these conditions the machine operates as heretofore, that is to say, the justification punches with which rods 62 connect respond to the justification keys through rods 58 while the other punches respond to the character keys and the normal dimensions of the characters designated are measured from the more prominent gaging surface 53. When, however, spaced type are required the operator before striking the key representing the desired character, presses upon lever 55 thereby shifting block 54 to present the gaging surface of lesser prominence and at the same time shifting rods 62 laterally to bring them in line with pin 68, so that when the type designating key is struck both of the justification punches 41 in addition to the type designating punch or punches responsive to the depressed key will be actuated, and at the same time the plus measurement of the spaced type will be

carried into the line measurement as in the previously described embodiment of the present invention.

Having thus described my invention what

5 I claim as new is:—

1. In a pattern or record-strip composing machine provided with a series of character designating punches supplemental or justification punches a series of keys controlling
10 the punches and a line admeasuring mechanism of controllable mechanism for coupling the supplemental punches for simultaneous operation by any of the keys with the designating punches and mechanism for simultaneously varying the normal movement of
15 the unit measuring mechanism, substantially as described.

2. In a pattern or record-strip composing machine furnished with character designating and supplemental or justification punches and a series of keys for actuating the punch operating mechanism the combination with the punch operating mechanism of a hand-controlled device for coupling the
20 justification punches for simultaneous operation with any of the character punches and mechanism for registering the space value added to the character by the supplemental punch signals, substantially as described.
30 scribed.

3. In a pattern or record-strip composing machine furnished with character designating and justification or supplemental punches a series of keys for actuating the punches and a line measuring mechanism the arrangement of a hand-controlled mechanism for simultaneously varying the travel of the line measuring mechanism or the amounts registered thereby and for coupling
35 the keys to operate simultaneously character and supplemental punches.
40 the keys to operate simultaneously character

4. In a pattern or record-strip composing machine furnished with a series of motor-operated punches comprising character-des-

ignating punches and two supplemental or 45 justification punches, a series of keys, a permutation system interposed between the keys and the valves of the punch motors the combination with the members of the permutation system of a movable bar having parts 50 which in one position only of the bar are in the paths of collars on the supplemental punch motor valves and controlled mechanism for moving the bar, substantially as described.

5. In a pattern or record strip composing machine provided with key-controlled signal producing devices including selective and dimensioning elements responsive to each key and in combination therewith supplemental dimensional signal producing devices and means for coupling the latter with any key for adding, at will, a special dimensioning member to the normal dimensioning component of the signal assigned to the op- 65 erated key.

6. In a pattern or record strip composing machine provided with key-controlled signal producing devices including selective and dimensioning elements responsive to each 70 key and means for measuring said dimensioning elements and in combination therewith supplemental dimensional signal producing devices, means for varying the action of the dimensional measuring devices, 75 and means for coupling the supplemental dimensional signal producing devices with any key and the variable dimensioning means with the measuring devices, to produce a signal containing in addition to its 80 normal dimensioning element a supplemental dimensioning component and vary the action of the measuring devices accordingly.

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Witnesses:

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."