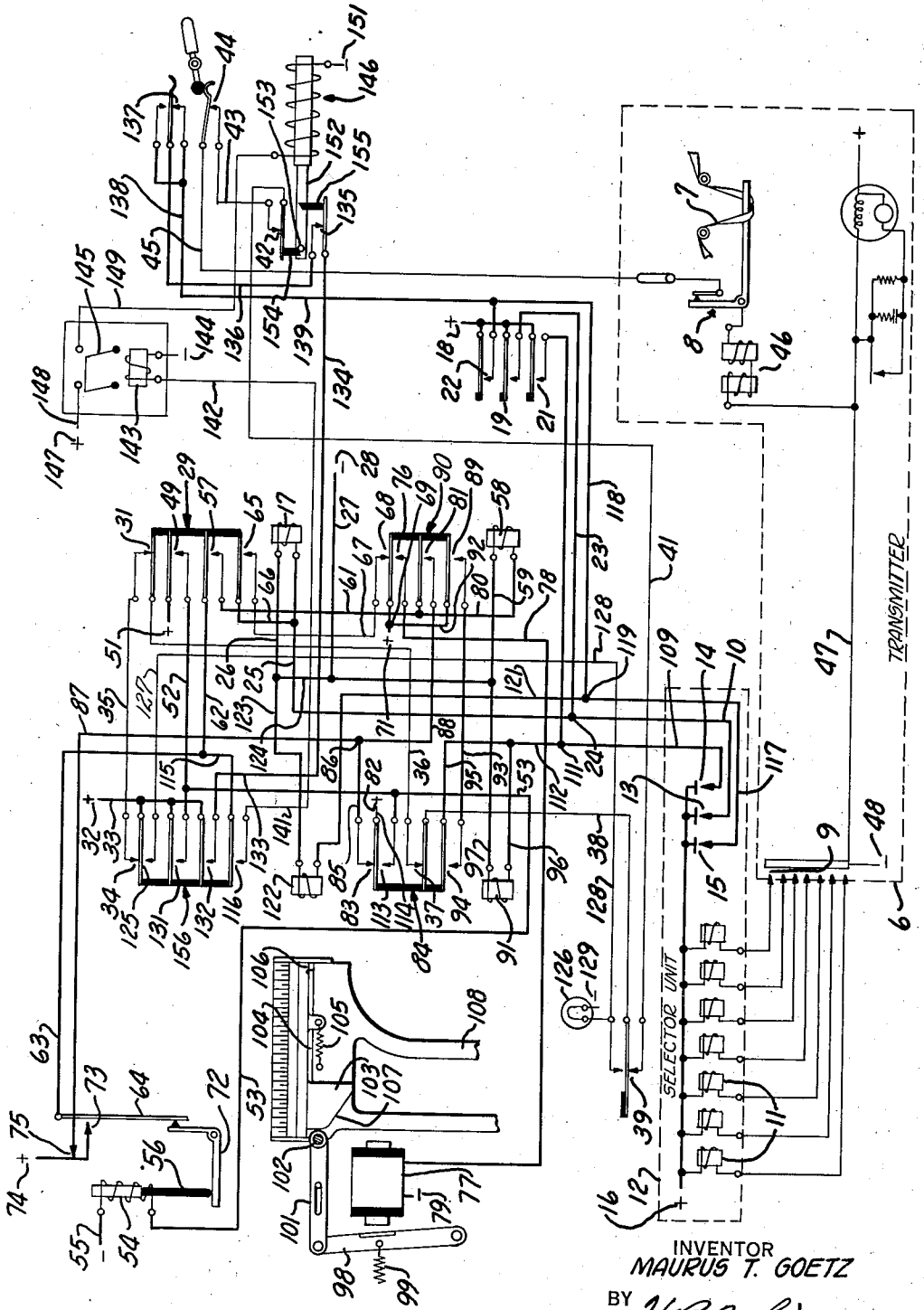
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DELAY APPARATUS FOR LINE CASTING AND COMPOSING MACHINES

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DELAY APPARATUS FOR LINECASTING AND COMPOSING MACHINES

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The present invention relates to linecasting and composing machines and particularly to improvements in assembling block rail shift mechanisms and automatic control means for the operation thereof.

The present invention has for its object the provision of mechanism associated with an automatic control unit for the operation of linecasting machines and adapted during the performance of certain functions which may be initiated either manually or automatically to introduce a time delay interval, in order to permit the consummation of other and preceding functions of said linecasting machine.

In the operation of linecasting and composing machines under the control of stored signals it has been the practice to perforate a tape with various transverse rows of perforations corresponding to individual code signals. In accordance with the character of each transverse row of perforations a set of sensing elements are conditioned to perform a selection or to condition a corresponding selectable element so that it may thereafter inaugurate a certain function. Of the several functions of an automatic control unit for linecasting machines, the major portion is concerned with the selective release of matrices which are normally supported in a storage magazine above the assembling mechanism. As the matrices are selectively and successively released, they are permitted to gravitate through chutes and be collected in a carriage to be hereinafter referred to as the assembling block.

In accordance with the well-known practice, each matrix carries two related character impressions or intaglios located one above the other in a standard relationship while the assembling block is provided with a shiftable supporting rail which may, by being presented or withdrawn from the ingress portion of the block, determine the level at which subsequently received matrices may be supported within the block. When a matrix is received upon one or the other of the two levels, it is thereafter thrust leftwardly by the impingement of subsequently received matrices and is maintained upon the selected level throughout its travel and until it is returned to the magazine.

Since the gravitation of the matrices from their storage magazine to the assembling block necessarily requires a certain time interval, it will be understood that where any modifying functions are to be performed upon the assembled matrices it will be necessary to delay the performance of such functions for an interval of time equivalent to or exceeding the time necessary to permit the last matrix preceding such functions to gravitate from its point of release in the storage magazine to the assembling block. Otherwise, if the performance of such modifying functions were consummated promptly with the reception of their signals, the performance thereof might precede the reception of foregoing matrices, failing thereby to include such matrices within their proper class where they may be modified by the special function. It is accordingly a feature of the present invention to provide means for introducing a time delay interval in the performance of certain functions, approximating the time occupied during the travel of each matrix from its storage magazine to the point of assembly.

The introduction of a time delay element is vital to the proper performance of each of several special functions, such as the elevator operation, the shifting of control mechanism from one to another of several matrix storage magazines, and the shifting of a displaceable or shiftable assembler rail as mentioned above. For the purpose of explaining the present invention but one of these special functions will be illustrated in the accompanying drawing and described in the following specification. This function will concern the shifting of the assembling block shiftable rail from its so-called bold position to its roman position and vice versa in accordance with each of a pair of received code signals which are especially delegated for the performance of such functions.

The introduction of a time delay element, between the instant at which certain signals are sensed in the storage tape and the instant at which their performance is consummated, has been recognized as essential to the performance of automatic control mechanism and numerous ways have been devised for accomplishing this purpose. Among these may be mentioned the practice of installing blank signals upon the tape to intervene preceding character signals and succeeding special function signals. The effect of blank signals is the mere idle operation of the tape sensing mechanism, no functional response resulting therefrom, so that the reception of successive blank signals effects a time delay corresponding to the number of such signals. While this method of operation may be said to accomplish the same purpose as that of the present invention, it has been found nevertheless that perforating machine operators who prepare the control tape inadvertently omit the blank signals or fail to install a sufficient number of them before each rail shift operation to assure the

proper performance of the shiftable rail. It has also been found that where in certain cases rail shift signals occur frequently, this method of procedure unduly lengthens the tape as compared with the normal length required for carrying the essential character selecting signals.

The structure illustrated in the accompanying drawing is particularly adapted to a system such as that disclosed in Patent No. 1,970,567, issued August 21, 1934. The following description will embrace so much of the disclosure of the aforementioned patent as is deemed essential to a comprehensive disclosure of the present invention only, reference being had thereto for a complete understanding of the mechanism and operation thereof.

Briefly, the present invention contemplates the provision of a slow-operating relay and circuit connections located between the function selecting mechanism and other relays which actually perform the ultimate operations. The shiftable rail chosen to exemplify the present disclosure is spring-actuated or normally maintained in one position and is moved into its other position by a magnet counteracting the influence of the spring and energized by control circuit that is initiated by the closing of a contact in a selector unit and is completed after the intervention of a time delay interval which is determined by said slow-acting relay and is maintained thereafter by means of a locking circuit.

For a more comprehensive understanding of the present invention, reference should be had to the accompanying drawing in which like reference characters designate similar parts throughout. The reference character 6 indicates a dotted line enclosure within which are contained certain symbolic elements which pertain to the transmitter mechanism. Into the transmitter record reader is fed a perforated tape 7 upon which are impressed various transverse rows of perforations corresponding to telegraph codes. The record reader is provided with a conventional type of tape control switch 8 which remains closed during the normal condition of operation when there is a proper slack in the tape 7 but which is broken when the control tape 7 becomes taut and is thereby made to arrest the further operation of the transmitter. The tape sensing elements of the transmitter 6 are made to effect a corresponding closure of a set of contacts 9 which in turn cause to be energized a corresponding set of selector magnets 11, contained in a selector unit 12 which is described in detail in the patent referred to.

In accordance with the variable energization of the several magnets 11, the selector unit 12 effects a selective performance by the closure of one of a plurality of sets of contacts of which there are illustrated in the instant case three, indicated 13, 14, and 15. Upon the closure of any of these contacts, there is consummated a corresponding function which, in accordance with the order named, completes the bold shift operation, the roman shift operation, or the elevator performance.

Upon the closure of the set of contacts 13, positive potential is introduced over line 10 from a common source 16, causing thereby to be energized a relay 17, to be referred to hereinafter as the bold face relay. A circuit for energizing this relay may be traced from either the positive potential 16 originating in the selector unit and coming over line 10 or positive potential 18 originating from a keylever 19 which is one of a bank of manually controllable keylevers 19, 21, or 22. When the energization of relay 17 is initiated by manual control through the depression of keylever 19, positive potential 18 is introduced over line 23 which joins with line 10 at the junction 24 after which the common circuit continues over a line wire 25 through the winding of relay 17, thence over lines 26, 124, and 27 to the negative current potential 28.

The energization of the bold face relay 17 accomplishes four distinct results upon attracting its contact block 29. In the first place, the record reader of the transmitter 6 is arrested by the opening of the contact 31, breaking the record reader control circuit which originates with positive current potential 32, and passes over a line 33 through contacts 34, line 35, contacts 31, line 36, contacts 37, line 38, contacts 39, line 41, contacts 42, line 43, contacts 44, line 45, tape switch 8, through the windings of stop coils 46, thence over line 47, to the source of negative current potential 48. Thus it will be observed that the circuit just traced contains several control switches and comprises a chain and that it is controlled by several elements in series.

As a secondary result of the energization of bold face relay 17, there is effected the closure of contacts 49, causing the introduction of positive current potential from the source 51 over line 52, thence over line 53 to the winding of a slow-acting or dash pot relay 54 to a source of negative potential 55. The energization of the relay 54 does not result in the prompt response of its plunger 56, but depends upon the lapsing of a predetermined time interval which may be controlled by a suitable adjustment as is well known in this type of relay structures.

Meanwhile, the closure of another contact 57 by the energization of bold face relay 17 prepares a path for the energization of a bold face locking relay 58, which path may be traced from negative source of current potential 28 over line 27, thence over line 59, through the winding of relay 58, over line 80, thence over line 61, through the contacts 57 (now closed), over line 62, thence over line 63 to the contact switch member 64 of dash pot relay 54.

The closure of the remaining contact 65 of contact block 29 causes the lockup of the bold face relay 17 by the completion of a circuit originating from negative source 28 over line 27, thence over lines 124 and 26, through the winding of relay 17, line 66, through the contact 65, line 67, through the contacts 68, line 69 to the positive source of current potential 71.

As a result of the energization of dash pot relay 54 after the intervention of a predetermined time interval, the plunger 56 is permitted to complete its travel downwardly, rocking bell crank lever 72 in a counterclockwise direction and permittting contactor 64 to engage make contact point 73. This introduces positive current from source 74 over the line 63 and completes the circuit which had been prepared by the closure of the contacts 57 of block 29, causing the energization of locking relay 58. The further movement of contact 64 after encountering the contact point 73 results in the breaking of another circuit to be described hereinafter by the opening of contact 75.

With the energization of the bold face locking relay 58, four results are attained. Upon the opening of the contacts 68, the locking circuit is broken which had been holding bold face relay 17 and which was described above. As a result

of the release of relay 17, contact 31 is again closed, completing the aforedescribed chain circuit which controls the record reader mechanism of the transmitter 6 by energizing the stop coils 46. As a further result of the deenergization of relay 17, contact 49 is broken and dash pot relay 54 deenergized, restoring the latter member to its normal condition, as indicated in the illustration. The opening of contact 57 opens the operating circuit for energizing the locking relay 58. The relay 58, however, remains energized through its own locking circuit established by the closure of the contacts 81 as described hereinafter. In addition, the closure of contacts 76 of block 90 energizes the bold face operating coil 77 by completing the following circuit from positive current potential 71 over line 69, through the contacts 76, thence over line 78, through the winding of magnet 77 to negative current source 79.

The closure of another pair of contacts 81 of the bank 90 completes the self-locking circuit for relay 58 which is traceable as follows: from positive current potential 82, through the contacts 83 of block 84, over line 85 to the junction point 86. Attention is now called to the fact that at this point is connected another line 87 over which positive current supply may also be obtained from the source 74. The principal circuit continues over line 88 through the contacts 81 (now closed), over line 80, through the winding of relay 58, and thence over line 59 and line 27 to the negative current source 28. So long as the dash pot relay 54 is energized and the contacts 75 remain open, positive current potential may not be obtained from the source 74 for supplying the last described circuit, but must be obtained from source 82.

As a final result of the energization of relay 58 there is closed a pair of contacts 89 which prepares a locking circuit for energizing a roman shift relay 91. This circuit may be traced from positive potential 71, over line 92, through contacts 89 (now closed), over line 93, through contact point 94 (now open), thence over lines 95 and 96, through the winding of relay 91, thence over lines 97 and 27 to the negative source of current potential 28. This circuit may not be completed until the closure of the contacts 14, which momentarily supplies positive current for energizing the relay 91 for closing the contacts 94, and after which the positive current supply may be obtained from source 71.

Thus it will be seen that the energization of relay 58 was delayed until the plunger 56 of dash pot relay 54 had completed its travel. The energization of magnet 77 as one of the incidents of the energization of relay 58 consummated the ultimate object of the particular selection which was manifest as a result of the closure of the contacts 13. The consummation of this performance was thereby delayed by the intervention of the dash pot relay 54.

So long as relay 58 remains energized, magnet 77 will remain energized, and in so doing, will attract its armature 98, rotating it clockwise against the tendency of its return spring 99, and shifting bar 101 rightwardly. The latter member through its roller 102 engages a depending portion 103 of rail 104, and shifts the latter member against the tendencies of its spring 105. This presents the foremost portion 106 of rail 104 in its right-hand extremity where it may support rather than reject subsequently received matrices. In this position the rail 104 is understood as being in the bold face condition, a term which indicates that subsequently received matrices will be supported in an elevated position with their bold face intaglio in alignment for casting operation.

The depending portion 103 of rail 104 is provided with a beveled edge 107 so that if the elevator 108 is thereafter operated moving upwardly, then upon its descent, the beveled edge 107 encounters the roller 102 when the magnet 77 is energized. Thus upon its upward travel the rail 104 is shifted leftwardly by spring 105 as the depending portion 103 clears roller 102. This causes the assembled matrices to be braced between the projection 106 and an upstanding member of the assembler slide which serves as a jogger. Upon the descent of the elevator 108, rail 104 is restored to its original position and line composition may continue under the influence of the established condition of the rail 104.

Thus are found the several elements during the condition in which the rail 104 is in its bold position and when locking relay 58 remains energized, the circuit for energizing roman relay 91 being prepared for the reception of a subsequent roman shift signal.

When a roman shift signal is received by the transmitter 6 and communicated to the selector unit 12, it causes the closure of the contacts 14. This sends positive potential over line 109 from source 16, as in the case of the bold shift signal. Positive potential may also be obtained from source 18 by depressing a manually operable key-lever, in this case number 21. The two sources of positive potential join at 111 and thence continue over line 112, over line 96, through the winding of relay 91, over line 97, and line 27, to the source of negative potential 28. This causes the energization of relay 91, which upon drawing up its contact block 84, accomplishes four results. By opening the contact 83 it takes off the positive source of current supply 82 from the circuit which had been energizing relay 58, leaving the latter to rely solely upon the source 74, as described above, so that subsequently, when the dash pot relay 54 is again energized and the positive source 74 cut off, the relay 58 may become deenergized.

Contact is made at 113, completing a circuit for energizing the dash pot relay 54 as follows: from positive current source 82 over line 114, through the contacts 113, over line 53, through the winding of relay 54 to negative current supply at 55. The completed movement of plunger 56 of relay 54 is not consummated immediately however, but awaits the predetermined time interval in accordance with its dash pot adjustment.

The opening of the contact 37 again breaks the tape control circuit, which was traced through this contact in the description above, and which thereby arrests the record reader mechanism through the deenergization of the stop magnet coils 46, and finally through the closure of the contact 94 there is established a locking circuit for relay 91 as follows: beginning with positive current source 71, over line 92, through the contact 89, which is still closed pending the deenergization of relay 58, thence over line 93, through the contacts 94, over lines 95 and 96, through the winding of relay 91, over line 97, thence over line 27 to negative current source 28.

As a result of the energization of the dash pot relay 54 and after the lapse of a predetermined time interval, the plunger 56 is forced downwardly, rotating bell crank 72 in a clockwise direction and again permitting the contactor 64 to engage make contact 73 and then to break the

contact at 75 as in the case of the bold shift operation. The make contact 73 is ineffective at this time, however, because the circuit originating with positive potential at 74 and continuing over line 63 is open over branch 62 at contact 57 and branch 115 at contact 116. When the break contact 75 is opened, however, it withdraws the positive potential 74 from the energizing circuit of relay 58, of which the alternative source 82 had already been withdrawn by the energization of relay 91. This allows relay 58 to release and be restored to normal position as illustrated in the figure.

As a result of the release of relay 58, contact 68 is again closed, restoring the normal or prepared condition to the bold face locking circuit which continues over line 67 to the contact 65. By the opening of the contact 76, the energizing circuit for magnet 77 is broken, which had originated in positive source 71 and continued over line 69 through the contact 76, and line 78, through the winding of magnet 77 to the negative source 79. The deenergization of magnet 77 permits the springs 99 and 105 to retract their respective members to normal position, allowing rail 104 to resume its roman condition.

By opening contact 81, the locking circuit of relay 58 is broken, which, having originated from two sources 74 and 82 and continuing over lines 87 and 85 to the junction 86, travelled the path 88, through the contacts 81, line 80, through the winding of relay 58, thence through lines 59 and 27 to the negative source 28.

The opening of contact 89 breaks the roman relay locking circuit for energizing the relay 91, cutting off the positive source of supply 71, which had travelled the path 92, through the contacts 89, line 93, through the contact 94, lines 95 and 96, winding of relay 91, line 97, thence through line 27 to the negative source 28. The opening of the locking circuit for relay 91 causes this relay to release its contact block 84, which in turn is effective in four results. Upon the closure of contact 37, the tape control circuit is again completed, permitting the energization of stop coils 46 and the resumption of operation of the record reader mechanism. At the closure of contacts 83, locking circuit for relay 58 is reconditioned from the positive source 82 over line 114, through the contact 83, over line 85, thence over line 88 to the contact 81 (which is now opened), over line 80, through the winding of relay 58, over line 59, and line 27 to the negative source 28. Upon the opening of the contact 113, the dash pot relay 54 is deenergized by cutting off the positive current supply 82 which had travelled over line 114, through the contacts 113, over line 53, through the winding of relay 54 to the negative current source 55. Upon the opening of the contact 94, the operating circuit of relay 91 is again disabled so that during the establishment of the roman condition of rail 104, subsequently received roman shift signals are totally ineffective. Thus is restored the normal condition of relay 91, permitting the shiftable rail 104 to resume its normal or roman position.

In accordance with the foregoing description, there has been disclosed a bold face shift signal for moving the rail 104 into its bold position followed by the description of a roman face shift signal for restoring rail 104 to roman position. In the execution of each of these signals, the dash pot relay 54 was effective in introducing a time delay interval which was equivalent to the time occupied by one matrix in gravitating from its point of release in the matrix storing magazine to the point of reception in the assembling block. As was indicated before, this illustration is but one example of the utility of a delay mechanism for momentarily suspending the response to certain control signals. Another example of the utility of this invention will be given in the following description which illustrates its application in connection with the elevator operation control circuit.

Upon the reception of an elevator operating signal, the selector unit 12 effects the closure of contacts 15, introducing positive potential from source 16 over line 117. As in the case of contacts 13 and 14, positive potential may also be had from source 18 by the closure of a manually operable keylever, in this case number 22, and communicated over a line 118. The lines 117 and 118 are joined at 119 from whence they continue over line 121 through the winding of elevator coil 122, thence over lines 123 and 124, and line 27 to the negative source 28. This energizes relay 122 upon the closure of which five results are had. At the opening of contact 34 the tape control circuit is broken, it being recalled that contact 34 is one of the chain of control contacts located in this circuit. Upon the closure of contacts 125 an indicator lamp 126 is lighted over the following circuit, originating with positive potential 32 over line 33, through the contacts 125, over line 127, thence over line 128, through the filament of lamp 126 to negative source 129. The lighting of lamp 126 indicates the time interval occupied by the elevator in its transit, and upon its failure to become extinguished, serves as a notice of an uncompleted elevator performance. Upon the closure of contact 131, the dash pot relay 54 is energized over the following circuit: from positive source 32, over line 33, through the contact 131, over line 53, thence through the winding of relay 54 to the negative potential 55. The plunger 56 of solenoid relay 54 does not respond instantly as is its inherent characteristic, but occupies a certain time interval in consummating its travel.

Meanwhile, the closure of contacts 132 establishes a locking circuit for relay 122 as follows: from positive potential 32, over line 33, through the contacts 132, over line 133, thence over line 134, through the contacts 135, over line 136, through the contacts 137, over line 138, thence over line 139, lines 118 and 121, through the winding of coil 122, thence over line 123, through the line section 124, and over line 27 to the negative source 28. This locking circuit maintains the relay 122 energized even after the selector unit has been restored to normal and the contact 15 opens. As a result of the closure of contacts 116, a circuit is prepared which awaits the consummate operation of dash pot relay 54 and is traceable from positive potential 74 through the make contact 73, contactor 64, over lines 63 and 115, through the contact 116, over lines 141 and 142, through the winding of an operating coil 143, to source of negative supply 144. The energization of relay 143 closes a switch 145 and completes the circuit for energizing the elevator solenoid 146 as follows: from positive source 147, over line 148, through the switch 145, thence over line 149, through the winding of solenoid 146 to the negative source 151. The movement of the solenoid plunger 152 is dependent upon and directly proportional to the movement of the elevator 108 in a manner which may be understood by referring to the aforementioned Patent No. 1,970,567, and as it is withdrawn from

the position illustrated, a contact pin 153 carried thereby is withdrawn from the insulated portion 154 of switch contacts 42, permitting the latter to open the record reader circuit at that point, it being recalled that contacts 42 are also in the record reader control circuit. The record reader circuit is already broken at this time, however, by the opening of contacts 34, but the opening thereof at contacts 42 prevents the restarting of the record reader until the full return of the elevator 108. When the elevator 108 reaches its ultimate level at which the matrices assembled in the block may be withdrawn by the delivery slide, the plunger 152 will have been withdrawn so that its pin 153 engages the insulated block 155, which is associated with switch 135, causing the latter to be opened and breaking the locking circuit for maintaining energized the elevator relay 122. Upon the deenergization of relay 122, the contact block 156 is restored to normal condition, reestablishing the following results:

The closure of contact 34 reestablishes the circuit for energizing the stop magnet coils 46 and permitting the record reader to resume operation subject, of course, to the closure of the contacts 42 conditioned upon the complete return of the elevator as described above. The opening of contact 125 breaks the circuit for lighting the signal lamp 126, thereby extinguishing the signal and indicating the delivery of a load of matrices by the elevator mechanism to the line delivery slide level. The opening of contact 131 deenergizes the dash pot relay 54 by opening its circuit, which originates at positive source 32 and passes through the contacts 131 over line 53, through the winding of coil 54 to the negative source 55. The opening of contacts 132 breaks the locking circuit for relay 122 over the circuit described above, and the opening of contacts 116 deenergizes the relay 143, opening the switch 145 and the circuit for energizing the elevator operating solenoid 146.

Thus has been described an arrangement of control relays for obtaining a time delay in the performance of certain functions of a control unit for operating a linecasting machine. It will be evident that numerous modifications and variations may be made without departing from the spirit or scope of this invention. For this reason it is not intended to be limited to the specific details illustrated in the accompanying drawing, nor to the language contained in the foregoing description, but to be permitted, instead, a latitude of interpretation as indicated by the hereinafter appended claims.

What is claimed is:

1. In a composing machine, for selectively assembling a plurality of character elements, means to select each character element in response to a stored signal, auxiliary means to modify a selected character element in its response to its signal, and means to delay said response in order to correctly time the character selecting operation with the operation of the character modifying means.

2. In a linecasting and composing machine, an assembler elevator including means for determining the level at which matrices are to be assembled having a normal condition out of matrix receiving position and assuming said condition upon the ascent of the elevator, and means automatically operated under the control of stored signals for moving said first mentioned means into a matrix supporting position and effective upon the descent of the elevator to move said first mentioned means to its previous position.

3. In a linecasting and composing machine, a matrix assembling block, an elevator for moving said block between composing and casting levels, a signal responsive control unit, a supporting rail within said block shiftable into positions for accordingly supporting or rejecting subsequently received matrices, said rail being under control of said unit and including a severable linkage of coactive members including a cam surface effective, upon the return of said elevator mechanism, to reinstate pre-existing conditions.

4. In a linecasting and composing machine including a plurality of matrices to be selectively gravitated during line composition, a block for receiving said matrices in composite assembly, a preconditioning apparatus in said block for modifying the manner in which said matrices are received, an automatic control unit responsive to certain signals for selectively releasing said matrices and to other signals for preconditioning said apparatus, and a delay factor for suspending the response of said preconditioning device to its control signals until previously released matrices shall have been fully received.

5. In a line composing machine including a plurality of matrices each bearing two characters, an assembling block for receiving said matrices, a preconditioning element for affecting the position in which said matrices are received in said block in accordance with its characters, a control unit responsive to stored signals including selectable means responsive to certain signals for releasing said matrices, selectable means responsive to certain other signals for actuating said preconditioning element, and a delay apparatus for prolonging the responsive interval of said preconditioning element.

6. In a linecasting and composing machine, an automatic control unit responsive to store signals, a matrix storage magazine including a plurality of matrices individually released under the control of said unit in accordance with certain signals, a carriage for receiving and assembling said released matrices, a member on said carriage for predeterminately affecting the manner in which said matrices are received by said carriage, and delay mechanism carried by and under the control of said unit for conditioning said member in accordance with certain other signals following the lapse of a predetermined time interval.

7. In a composing machine, a plurality of character elements to be assembled, means to select each element in response to a signal peculiar to it, means to modify the response of each character to its signal, and means to delay the effectiveness of said modifying means in timed relation with its selection.

8. A linecasting and composing machine having a composing level and a casting level, an assembling block movable between said levels, a control unit including a record reader mechanism responsive to certain perforations in a control form for composing, means responsive to certain other perforations for preconditioning said block, and means operative during the performance of said last mentioned means for suspending the operation of said record reader.

9. In a linecasting and composing machine, an elevator including a matrix receiving portion, a preconditioning device for determining one of two alternative positions in which incoming matrices may be received in said portion, a record reader mechanism responsive to perforations in

a control form for selectively releasing matrices to be received in said portion, and means operative during the performance of said preconditioning device for preventing the further operation of said record reader.

10. In a linecasting and composing machine, an elevator movable between composing and casting levels, a matrix receiving block carried by said elevator, a longitudinally movable preconditioning device for determining one of two alternative positions in which selected matrices may be received, and electromagnetic means for moving said preconditioning means.

11. The combination set forth in claim 10 in which said electromagnetic means is operative for moving said preconditioning means into one of its positions, and a spring element for moving said means into its other of said positions.

12. A linecasting and composing machine having a plurality of matrices each bearing two characters, means to release said matrices singly, a carriage for receiving said released matrices, a member associated with said carriage for determining the position in which the matrices are assembled in accordance with the character to be cast, means to shift said member, and automatic means to delay the shifting means until all previously released matrices are properly positioned in the carriage.

13. A type composing machine employing a plurality of matrices each carrying two characters, a holder for receiving said matrices, means in said holder for supporting said matrices in one character position, adjustable means for supporting said matrices in the other character position, a control means responsive to perforations in a tape, and delaying means operated by said control means for selectively moving said adjustable means into and out of matrix supporting position to allow successive matrices to be assembled in corresponding positions.

14. In a linecasting and composing machine, an assembling block for receiving released matrices, a supporting rail associated with said block and shiftable into two positions for accordingly receiving or rejecting subsequently released matrices, a magnet constituting a motor means for shifting said rail and a relay for maintaining energizing current supply to said magnet including operating circuit means responsive to control impulses for energizing said relay and locking circuit means for prolonging the operated condition of said relay beyond the time interval of said control impulses.

15. In a linecasting and composing machine, a matrix assembling apparatus, a shiftable supporting rail associated with said apparatus, means for shifting said rail under the control of stored signals, and electromagnetic means for storing the effect of said signals for a prolonged time interval.

16. In a linecasting and composing machine, a matrix assembling apparatus, an element associated with said apparatus for modifying its receptive attributes, a motor responsive to certain stored signals for actuating said element, and storage means under control of said certain of said stored signals for prolonging their effect upon said motor.

17. In a linecasting and composing machine, an apparatus for receiving released matrices in composition alignment, means associated with said apparatus for modifying its receptive attributes, a control mechanism responsive to stored signals, and means conditioned by said control mechanism in its response to certain of said stored signals for setting up a protracted response upon said modifying means.

18. The combination set forth in claim 17 in which said conditioned means comprises an arrangement of electromagnetic relays and means associated with said relays for damping the response thereof.

19. In a linecasting and composing machine, a matrix assembling apparatus, means associated with said apparatus for modifying its receptive attributes, a relay for controlling the placement of said means in one condition, a relay for controlling the placement of said means in another condition, a record reader responsive to certain signals for causing the energization of the first mentioned of said relays and to certain other signals for causing the energization of the last mentioned of said relays, and intercontrol circuit connections between said relays for conditioning each to become responsive to said record reader following the energization of the other.

20. In combination, a matrix assembling block, a displaceable rail for varying the receptive attributes of said block, electromagnetic means for moving said rail, storage means for prolonging the existence of control signals for energizing said electromagnetic means, a selector mechanism responsive to electrical codes for setting up conditions in said storage means, and manual means for setting up conditions in said storage means.

21. In a linecasting and composing machine, a conveying mechanism, a shiftable rail in said conveying mechanism for determining the receiving level of assembled matrices, power means for actuating said conveying mechanism and said rail in accordance with predetermined manners of operation, and a keyboard including manually operative key-levers for initiating the association of said power means with said conveying mechanism and with said shiftable rail.

22. In a linecasting and composing machine, a keyboard control unit including keylevers for initiating slug composing functions, keylevers for initiating type font shift functions, a common source of power, and means initiated into operation by the actuation of said keylevers for establishing the operative connection between said source of power and correlated composing and font shifting apparatus.

23. In a linecasting and composing machine, an assembler block for receiving slug casting matrices during composing operations, a rail shiftable into alternate positions for accordingly supporting or rejecting released matrices, a power operated means for moving said rail into each of its positions, and a manually actuated lever for causing said power means to move said rail.

24. The combination set forth in claim 23 wherein said power means may also be operated automatically in response to predetermined conditions.

25. In a linecasting and composing machine, a composing mechanism including a plurality of sets of matrices to be assembled for slug casting, a plurality of matrix release elements, an assembler for receiving released matrices in composition assembly including a modifying factor for determining the position of each matrix as it is received in said assembler, a signal responsive mechanism for controlling the actuation of said matrix release elements automatically including

means under the control of certain signals for moving said modifying factor, and means operative during the movement of said modifying factor to suspend the further release of matrices.

26. In a linecasting and composing machine, a composing mechanism including means for selectively releasing a plurality of matrices, a shiftable element for modifying the manner in which said matrices are assembled after their release, an automatic control unit for initiating the performance of said shiftable element and of said composing mechanism, and means for suspending the operation of said matrix releasing means during the interval of movement of said shiftable element.

27. In a linecasting and composing machine, an assembling block for receiving selectively released matrices, a rail shiftable between two positions for accordingly modifying the reception of subsequently released matrices, an automatic control unit responsive to stored signals for moving said shiftable means from one position to the other, and means for arresting the release of matrices during the time interval in which said shiftable means is moved from either of its positions to the other.

28. In a linecasting and composing machine provided with a plurality of matrices to be selectively assembled under the control of a perforated tape sensing mechanism, the method of momentarily arresting the release of matrices during the performance of a matrix composition modifying function comprising the steps of timing the performance of said function in accordance with the sequence of the released matrices, and disabling said tape sensing mechanism during the interim in which said function is executed.

29. In a linecasting and composing machine, an assembler rail shiftable into alternative positions for accordingly determining the reception of succeeding matrices, a composing mechanism for selectively releasing matrices to be assembled on said rail, a control unit responsive to stored signals for operating said composing mechanism and for shifting said rail, and means operative during the performance of said unit in shifting said rail for momentarily disabling the performance of said unit in operating said composing mechanism.

30. In a linecasting and composing machine, an assembling block movable for transporting lines of matrices to a delivery slide level, a shiftable supporting rail in said block for determining the level in said block at which released matrices are assembled, electromagnetic rail shifting means, and a severable linkage between said rail shifting means and said shiftable supporting rail comprising a cam projection associated with said rail and an armature member having cam cooperating means.

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