

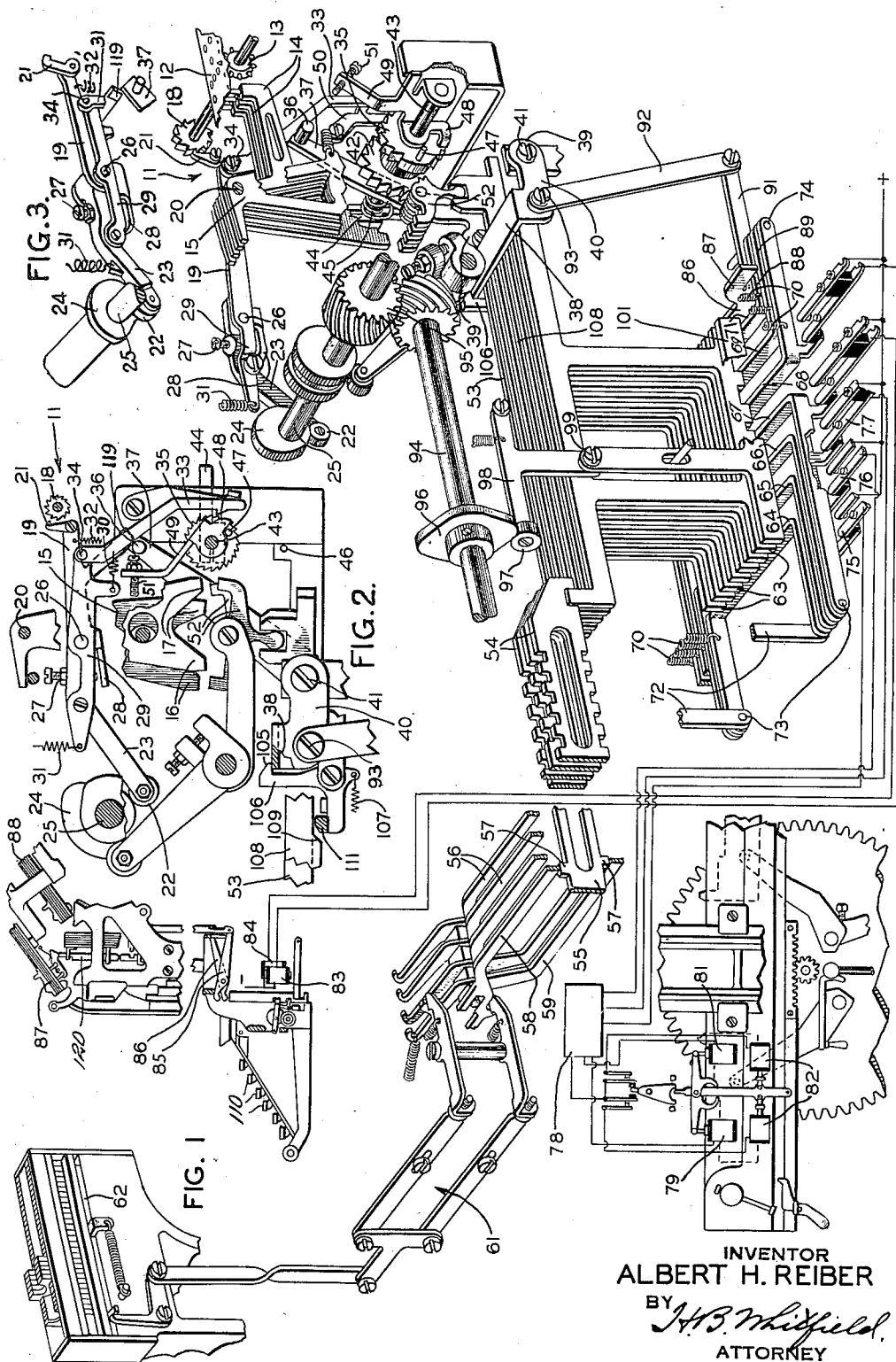
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PLURAL SELECTION ADAPTER FOR DELAY MECHANISM

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PLURAL SELECTION ADAPTER FOR DELAY
MECHANISM

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The present invention relates to linecasting and composing machines and more particularly to control units for mechanically and automatically operating such machines.

5 In the coordination of various composition operations under the control of perforated tape sensing mechanism capable of high speed operation, certain operations are encountered in line-
10 casting and composing machines which inherently are slow compared with other operations, such as matrix release, etc. To coordinate the several operations performed at different rates, delay apparatus has been perfected which institutes a time delay to compensate for the aforesaid
15 inherent slowness and to bring more effectively the various functions under the control of a single record sensing mechanism. Accordingly, an object of the present invention is to provide a selector unit that will respond to several different
20 signal selections for initiating the performance of mechanism for introducing a predetermined delay in the completion of operations under the control of the selector unit.

Another object of the invention is the provision
25 of a control unit for composing machines having its elements in a simple and compact arrangement to effect a variety of selective conditions.

In U. S. Patent No. 2,090,654 to L. M. Walden, there is illustrated a typical time delay apparatus
30 that is made responsive to a pair of signals for the attainment of the rail shift control operations. There, as will be noted, the allotted signals vary from each other by one signal element or characteristic. Where it is desirable to enlarge the
35 scope to which the delay mechanism may be made responsive, the mere additional modification of code bar notches which serve a common selectable element may not suffice, as may be understood by those acquainted with permutation code system
40 apparatus. The modification of a code bar to permit a selectable element to be selected in either of the selective positions of the code bar is termed code bar mutilation. It is accomplished by providing a selection notch in place of a blocking lug
45 in certain ones of the selector bars so that bars treated in this manner have no control over the selection of the selectable element. The mutilation of a single code bar relative to a particular selectable element is effected by removing one of
50 its blocking lugs and results in the selective response of that element to two signal combinations instead of but one. The formation of mutilation notches in more than one code bar may ultimately enlarge the selective scope not simply in an arith-
55 metical progression, but will, as the included code

notches are imposed compositely over one position, enlarge it geometrically; that is, where a code position such as 0, 1, 2, 3, and 4 is mutilated to the extent of one code bar (for example) in the No. 3 position, the affected selectable bar would
5 be responsive also to the code signal combination 0, 1, 2, and 4. If this code position is thereafter modified by the superimposed or composite mutilation (for example) of the No. 1 code bar, the
10 result would permit the selection of the particular selectable bar not only responsive to the aforementioned two code signals but also to the additional code signals 0, 2, 3, 4, and 0, 2, 4. It will be
15 observed then that as a result of the mutilation of two code bars instead of merely one, the selectable class is enlarged to embrace four instead of two code signals, omitting thereby the limited condition of a selectable class responsive to but three
20 signals.

Further, as a result of the mutilation of three
25 code bars, the selectable class of signals to which a given bar may be made responsive is equal to eight, etc. As the number of mutilated code bars is increased to enlarge the class of signals to which a given selectable bar may respond, the
30 number of class selection possibilities increases geometrically and for this reason there cannot be attained, by the composite code bar mutilation method, certain specific selectable class groups which may be regulated in their number to any of
35 the quantities three, five, six, seven, nine, ten, etc., but instead only to the quantities two, four, eight, sixteen, etc. Expressed mathematically, the number of signals thus affected is equal to two raised to a power indicative of the number of affected code bars. Thus in the final example
40 taken above, three code bars were modified, making the resulting change two to the third power, or eight. Because of the mathematical limits inherent in the system of secondary selection by superimposed code notches by reason of which
45 any specific number of secondary selections may not be assured, the present system has been developed so that any definite number of permutation code signals and any certain signal of a code order may be included in a class to be delegated to a supervisory or preparatory operation.

According to this system, a plurality of selectable elements may be employed for exercising the same supervisory control, and by various combinations of mutilated and non-mutilated code bars
50 controlling the selection of said elements, the supervisory function may be activated in response to any desired number of signal combinations, including those numbers intermediate the terms
55

of the geometrical progression. Thus the supervisory function may be made responsive to three signal combinations by providing two selectable elements, each operable upon the same supervisory mechanism, and mutilating one code bar with respect to one only of the selectable elements. Control of the supervisory function by four code combinations (it being noted that four is one of the terms of the geometrical progression) may be accomplished in two ways, one of which is in accordance with the method previously set forth; namely, the mutilation of two code bars with respect to a single selectable element, or it may be accomplished by providing two selectable elements and mutilating one code bar (not necessarily the same bar) with respect to each selectable element. Control by five combinations may be effected by providing two selectable elements, with respect to one of which two code bars are mutilated, and with respect to the other of which no code bar is mutilated, or by providing three selectable elements with respect to two of which one code bar (not necessarily the same code bar) is mutilated, and with respect to the other of which no code bar is mutilated. In this manner the plural selection of a supervisory or other function may be extended to any desired number and may be definitely limited to any desired number intermediate any two terms of the geometrical progression.

By means of the present invention, any pre-existing assignment of code signals for the selective operation of certain several functions may be committed to the supervision of a delay mechanism or to any other intervening agency without affecting the remaining codes not intended to be thus included. The principles of the present invention, in addition to the foregoing objects, permit also of a universal adaptation of code signals into a supervisory class so that where in a primary structure the selectable elements might be miscellaneous or sporadically distributed throughout the physical range of a set of selector bars, they may, nevertheless, be embraced within a predetermined supervision. This permits of a reassignment of signals to a secondary control or supervision without regard to the existing assignment in the principal grouping or to any arbitrary sequence or arrangement.

For a more comprehensive understanding of the present invention, reference may be had to the accompanying drawing and to the following detailed specification in which similar reference characters designate corresponding parts throughout, and in which,

Fig. 1 is a diagrammatic view illustrating compositely the various elements of a linecasting machine to be coordinated with a delay mechanism supervision having one form of the present invention embodied therein,

Fig. 2 is a transverse sectional view of a delay mechanism apparatus such as that illustrated in Fig. 1 or as more detailedly described in U. S. Patent No. 2,090,654, and

Fig. 3 is a detailed perspective view showing the assembled arrangement of the tape feed mechanism and its operating cam.

Referring now more particularly to the accompanying drawing, the reference character 11 indicates generally a record reader mechanism for sensing the transverse rows of perforations in a control form or tape 12 and for intermittently advancing the control form 12 by means of the sprocket wheel 13 so as to present consecutively the transverse perforations to a position where

they may be sensed cyclically by a set of feeler levers 14.

In the particular embodiment, the apparatus has been designed to accommodate a six-unit code system so that accordingly there are contemplated six feeler levers 14. An additional lever 15 generally similar to the levers 14, except that it is not provided with a tape sensing arm but only with the transfer projections 16 and 17 (Fig. 2), is supported intermediate the levers 14 upon a pivot shaft 20. The tape feed sprocket 13 is mounted upon a shaft which also carries a ratchet wheel 18 that is rotated one tooth step at a time during the reciprocal movement of a lever 19, which carries the feed pawl 21. As may be noted from Fig. 3, tape feed arm 19 is preferably made of sheet material channeled to form a cradle, the sides of which straddle the pivoted end of a lever 23 on shaft 26. A follower roller 22 carried by one end of lever 23 is actuated cyclically by a tape feed mechanism operating cam 24 which is secured to a shaft 25 to be hereinafter identified under the general term, record reader operating shaft.

The pivotal center of lever 23 coincides with that of lever 19 at the shaft indicated 26 in Fig. 2, and the movement imparted to lever 23 by the cam 24 is communicated through the adjustment screw 27 to the opposite end of lever 19 which is shaped with a horizontal projecting portion indicated 28. Another lever indicated 29 also pivots about shaft 26 and is secured to and operates integrally with the principal reciprocating lever 23. A spring 31 secured to the lever 29 or to lever 23 (Fig. 3) urges the assembly clockwise into contactual engagement with the cam 24 while lever 19 is provided with an individual spring 32 for urging its return movement in the same direction independently of the integral assembly comprising levers 23 and 29. Thus it will be seen that while levers 23 and 29 may be continuously reciprocated by the action of cam 24, lever 19, by being withheld in the position illustrated in Fig. 2, when its projecting arm 119 is blocked by an arm 37 (to be described later), may remain dormant so as not to actuate the tape feed ratchet wheel 18.

A feed pawl 33 is pivoted at 34 to the lever 29 and is designed to engage the teeth of a ratchet wheel 35 when permitted to do so. Under ordinary conditions of operation, the tooth of pawl 33 is withheld from engagement with ratchet wheel 35 by a laterally extending pin 36 secured to one arm 37 of a cradle assembly 40 which also includes the transverse connecting member 38 and which is pivoted through opposite ears 39 upon suitable trunnions 41 provided in the supporting structure.

The ratchet wheel 35 forms part of an integral assembly that includes also a companion ratchet wheel 42, the common shaft 43 upon which the two are secured, and an adjustable stop arm 44 for regulating the angular rotation of shaft 43 and in this way controlling the time interval of the delay. A coil spring 45 concentric with the shaft 43 urges it clockwise, as viewed in Fig. 2, to a position determined by the stop arm 44 which comes into engagement with a fixed stop pin 46, Fig. 2. Upon the reception of certain selecting signals, the cradle assembly 40 is rocked counterclockwise about the trunnions 41, moving the lever arm 37 inwardly and withdrawing pin 36 so as to permit the pawl 33 under the influence of its spring 30 to engage the teeth of the principal ratchet wheel 35. Thereafter the reciprocal

movement of lever 29, which it receives through lever 23 from cam 24, continues through pawl 33, rotating ratchet wheel 35 and shaft 43 in a step-by-step manner. A latching pawl 50, cooperating with the companion ratchet wheel 42, prevents the return of shaft 43 during each single step operation.

When the shaft 43 ultimately reaches a point as indicated in Fig. 2, a horizontally extending pin 47 carried by the ratchet wheel 35 comes into engagement with the projection 48 of a kick-off lever 49 loosely carried upon shaft 43. As a result, an adjustable screw 51 carried by lever 49 comes into engagement with and thereafter moves the intermediate lever 15 from its normal or counter-clockwise position to its opposite or clockwise position featured in Fig. 2. In so doing, the transfer projections 16 and 17 of lever 15 are thereby altered in position with respect to the projections of the associated transfer lever 52. It is to be noted that shaft 25 continues in operation, providing the power for rotating the escapement shaft 43 and also for reciprocating the several transfer levers 52 which receive the setting from the transfer projections 16 and 17 and instantly impart them to a corresponding set of connecting links 53, the opposite ends of which are interlocked with the six standard or primary code bars 54 as well as with the intermediate blocking bar 55 as described in the aforementioned patent. The bar 55 is connected through one of the links 53 with a transfer lever 52 which receives the setting from the intermediate lever 15 as described. While the several code bars 54 in accordance with their system of notches are designed to provide a transverse clearance to one of a plurality of selectable elements or bars 56 upon each setting thereof, the blocking bar 55 differs therefrom by being provided with certain lugs 57 presentable into the path of those selecting elements only whose functional response is to be delayed by the mechanism which is described in the instant case including the bars 58 and 59, the latter being illustrated as controlling through the linkage, indicated generally 61, the movement of the bold-roman shiftable rail 62. When, after the lapse of a predetermined time interval the special lever 15 is rocked out of its normal position by the kick-off lever 49, the change is communicated to the blocking bar 55, withdrawing the latter from effective position and accordingly permitting the selection of the particular selectable element (58 or 59) whose code signal is in readiness by presentation of a transverse alignment of notches in the standard code bars 54 in its path of selective operation.

It will be understood that upon the reception of a particular set of code signals to which a delayed function is to be interposed, the alignment of notches presented to its related element 56 may correspond with that which inaugurates the intervention of the delay mechanism, and where the particular codes to be thus served are few in number, for example two, the provision of a duplicate set of notches to accomplish the selective actuation of tape feed blocking arm 37 amounts simply to a duplication of the notches for serving the delay mechanism selecting element. An example of one such embodiment is that illustrated in the patent referred to above. Where a pair of codes are to be thus served varying in but a single characteristic, one of the code bars may be provided with a notched area in each of its alternative positions, but where a greater number of codes are to be thus served, the cutting of dupli-

cate notches in other ones of the selector bars 54 or connecting bars 53 which may be referred to as a superimposition of several codes upon each other, may enlarge the selection beyond that intended, as explained above. Accordingly the present invention provides a means for serving any desired number of signals of a code system for inaugurating the delay mechanism operation without enlarging the number of signals which may be affected beyond that actually required or designated.

In obtaining the above results, the present invention contemplates an extension of code surface area by the provision of auxiliary code sections 63, each of which corresponds to one of the code bars 54 or blocking bar 55 but which is illustrated as being integrally formed with the connecting links 53. The notches (not shown) provided on the extensions 63 may correspond with those provided for the selection of the principal elements 56 in bars 54, or they may, if preferred, provide additional selecting surface for the selection of new code elements which may not be included within the general class 56, thereby obtaining an increase in the total selective possibilities without having to extend longitudinally the length of the principal selector bars 54. In the case of keyboard mechanism to which the present improvement relates, this structural advantage is important towards the end of maintaining the overall longitudinal dimensions of the control unit or in keeping it at a minimum.

In the featured adaptation, the selectable elements served by the extensions 63 are shaped in the form of nested bails assembled into two groups and indicated 64-69 and 71. To obtain the nested relationship of the several bails, each is designed progressively larger than its preceding one of the groups. Bails 64 through 67 are pivotally supported at 73 from projections 72, while bails 68, 69, and 71 are similarly supported at pivotal centers 74. Each of the bails 64-69 and 71 is provided with an individual spring 70 which tends to urge it into engagement with the code extensions 63.

In accordance with the particular allotment, the selectable bails 64 through 66 have been assigned to code signals heretofore unemployed or unassigned, which control the three electrical contactors 75 through 77, which in turn control corresponding circuits leading to a storage and distributing mechanism indicated generally 78. The impulses initiated by the closure of these contacts variously control the energization of a set of magnets 79, 81, and 82 that execute the various functions of a quadding and centering apparatus, of which a more comprehensive understanding may be obtained from copending application Serial No. 759,832, filed December 31, 1934.

The succeeding pair of bails 67 and 68 are employed for the completion of circuits leading to a pair of operating magnets 83 and 84. These magnets actuate associated magazine shift or mixer control levers 85 and 86, the actuation of each of which restores the alternative one to its normal position, in this way controlling the so-called mixer apparatus which permits of the selective control of matrix composition from a pair of magazines 87 and 88. A more comprehensive disclosure of a magazine shift apparatus may be obtained from U. S. Patent No. 1,263,117.

In the illustration of Fig. 1, the reference character 110 designates the key tops which are manually controllable for the operation of release reeds 120, it being understood that means are also pro-

vided under the control of the individually selectable bars 56 for automatically actuating the reeds 120 in a manner such as disclosed in copending application Serial No. 600,606, filed March 23, 1932.

For convenience in coordinating the selection, the code combinations allotted to the selection of bails 67 and 68 differ from each other by but one code element, having marking signal conditions in positions such as, for example, 0, 1, 4, 5 and 0, 1, 2, 4, 5 and spacing signal conditions in the remaining or undesignated positions. In the same way, the two code signals for selecting the elements 58 and 59 differ from each other by but a single code element; such as, 0, 1, 2, 4 and 0, 1, 2, 3, 4. The particular allotment is a matter of convenience and may be varied in accordance with arbitrary design or any other requirements if so desired.

One of the bails 69 and 71 is selectable in response to the signals to which the duplex rail selectable bars 58 and 59 are individually responsive and the other is selectable in response to the signals to which the font changing selectable bails 67 and 68 are individually responsive. Thus, with respect to bail 69, it will be understood that a selective alignment of notches is permitted during the reception of either signals 0, 1, 4, 5 or 0, 1, 2, 4, 5, thus the code bar extension 63 corresponding to the No. 2 position is notched in both of its alternative positions with respect to bail 69, while in like manner bail 71 being responsive to codes 0, 1, 2, 4 and 0, 1, 2, 3, 4, the extension 63 relating in this instance to the No. 3 code element impulse, is notched in both of its alternative positions opposite the transverse portion of this bail. For convenience in referring to the bails 69 and 71 and for distinguishing them from their associated principal selectable elements 58—59 and 67—68 they (bails 69 and 71) will be referred to hereinafter as the secondary selectable elements while their related principal factors may be referred to as the primary or principal selectable elements.

Noting now particularly the peculiarities of blocking bar 55 it will be observed that it is provided with but few projections 57. In the instant adaptation, the projections 57 are presented so as to block the selection of the primary selectable elements 58 and 59 during the normal disposition of blocking bar 55. In a corresponding manner the intermediate extension 63 associated with blocking bar 55 and particularly with link 100 is provided with a pair of projections (not shown) like the ones indicated 57 on bar 55. These, too, serve to block the selection of the primary selectable elements 67 and 68 during the normal disposition of the blocking bar extension 63.

On the edge of blocking extensor 63 which aligns with the secondary selectable elements, bails 69 and 71, during the normal position of said extensor notches are provided so that in response to either pairs of code signals 0, 1, 4, 5 and 0, 1, 2, 4, 5, or 0, 1, 2, 4 and 0, 1, 2, 3, 4, the bails 69 and 71 respectively are immediately admitted into selective operation while their associated primary or principal code bars are blocked from such operation by reason of the aforementioned blocking notches 57. The selective actuation of bails 69 and 71 is but momentary, however, and upon their restoration by the stripper blade 101, as will be described, blocking bar extensor 63 may be free to move longitudinally to its non-blocking position (of the primary selectable elements 58—59 or 67—68).

A bail 86 which may also be pivoted at 74 with

the group 68, 69, and 71 has integrally formed with it an overlying projection 87 which extends beyond the parallel arms 88 and 89 of secondary selectable bails 71 and 69 so that upon the selection of either of the latter bails resulting in the clockwise movement thereof, projection 87 is encountered and receives therefrom a corresponding clockwise rotation about pivot 74. The motion of bail 86 is communicated through an oppositely extending arm 91 and a link 92, which is connected at 93 to the aforescribed cradle or bail structure 40 pivoted on trunnions 41. This movement rocks the cradle 40 in a counterclockwise direction, withdrawing the blocking arm 37 and its pin 36 from engagement with the escapement pawl 33. In this position the cradle 40 is latched when its transverse table portion 38 cams down upon the inclined edge 105 of a latch pawl 106, permitting the latter to return under the influence of its spring 107 and thereby preventing the return of the cradle structure 40 when, during a subsequent portion of the operating cycle, the bail selector mechanism is restored. The restoration of the bail structure 40 awaits the release of latch 106, which operation is consummated by the connecting link indicated 108. This link is associated with the blocking bar 55 and the blocking bar extension 63 relating thereto. As indicated at 109, the bar of link 108, differing in this respect from the other links 53, is provided with an inclined cam surface which comes into engagement with and rotates a transversely extending portion 111 associated with latch 106, rocking the latter in a counterclockwise direction and releasing the cradle 40. Following the operation of the delay mechanism, when the blocking bar 55 and its associated connecting link 108 are moved to the right as viewed in Fig. 2, pawl 106 is freed and is then again permitted to respond to the influence of its spring 107. In this way the escapement mechanism is initiated not only in response to either of the pair of selecting signals assigned to the bold-roman code bars 58 and 59, but also to the selecting signals assigned to the operation of the mixer apparatus selectable by bails 67 and 68. To extend this principle of construction for accommodating additional signal codes, it is but necessary to provide additional secondary selection bails such as those indicated 69 and 71 and to extend the projection 87 of the common actuator or motion recipient 86 so that the selective actuation of the secondary selection bails is imparted thereto.

Selectable bars 56 and bails 64—66 inclusive are assigned to the control of operations which may be initiated immediately upon the transfer of the related signals and for which no delay or other modification of response need be interposed. Selectable bars 58 and 59 and bails 67 and 68 are assigned to the control of operations, the initiation of which may need to be delayed. The bars 58 and 59 and the bails 67 and 68 are not immediately responsive to their respective signals but are normally blocked by the blocking bar 55 or its auxiliary section 108 respectively, a condition which does not obtain with reference to the previously identified bars 56 and bails 64—66 inclusive. The selectable bars and bails 56, 58, 59, and 64—68 inclusive comprise the hereinbefore mentioned primary or principal selectable elements.

Bails 69 and 71 are controlled by the auxiliary code bar sections 63 and are not normally blocked by auxiliary section 108. They are therefore

capable of responding instantly to their assigned signals. Simultaneously with the response of one of the bails 69 and 71 to a signal, that one of the selectable bars 58 and 59 or the bails 67 and 68 to which is assigned the same signal, tends to respond, but is blocked by lugs 57 on the blocking bar 55 or its auxiliary section 108. Bails 69 and 71 do not directly initiate an operation of the linecasting machine, but instead, effect a supervisory control over the linecasting machine control unit, in that they set in operation the ratchet feed mechanism which, after a predetermined interval of operation, shifts the blocking bar 55 and its auxiliary section 108 to permit the initiation of an operation controlled by one of the selectable bars 58 and 59 or by one of the selectable bails 67 and 68. The bails 69 and 71 comprise the hereinbefore mentioned secondary selection bails.

The several selectable elements 56 are cyclically withdrawn by a spreader cam (not shown) carried upon a shaft 94 driven through the worm gears 95 from the record reader operating shaft 25. In order to restore concurrently any of the bails 64 through 69 or 71 which might also be selected, a cam 96 is provided corresponding in its angular position to the spreader cam which serves the general class of selectable elements 56. When the apices of cam 96 encounter the follower roller 97, there is imparted a counterclockwise movement to lever 98 which is articulated at 99 to a stripper bail 101 which opposes the action of the several bail springs 70. In this manner the several selectable elements 56 and 64 through 69 and 71 are simultaneously restored under the control of a single shaft 94.

While the present invention has been explained and described with reference to a particular embodiment, as exemplified by the accompanying drawing, it is to be understood that numerous modifications and variations may be made without departing from the spirit or scope thereof. Accordingly it is not intended to be limited to the specific features of the foregoing description nor to the details of the accompanying drawing, except as indicated in the hereunto appended claims.

What is claimed is:

1. In a selecting mechanism, a group of primary selectable elements, a group of secondary selectable elements, each element of which is responsive to a code signal common to one or more of the elements of said primary group, a common motion recipient controlled by the elements of said secondary group, and a supervisory mechanism initiated by said common motion recipient for affecting the performance of an element relating to said primary group of selectable elements.

2. In a selecting mechanism, a primary group of selectable elements, a group of secondary selectable elements each corresponding to an element of said primary group, and means for delaying the selection of an element of the primary group for a predetermined time interval beyond the instant of selection of its associated secondary group element comprising a blocking member normally presented in the path of the elements of said primary group, a ratchet feed mechanism including an actuating member, a repeating device for moving said actuating member through multiple cyclic operation, and a common motion recipient controlled by said secondary elements for initiating the performance of

said ratchet feed mechanism to control the positioning of said blocking member.

3. In a selecting mechanism, a set of permutation code bars having code notches distributed longitudinally thereof to afford a plurality of individual transverse alignments in accordance with the disposition of said bars and having additional secondary notches associated with said bars for affording a plurality of transverse alignments thereof concurrently with certain alignments only of said first mentioned notches, means for setting said bars permutably, and a mechanism for permitting the attainment of any transverse clearance in said second mentioned group of notches in advance of its corresponding clearance in the associated first mentioned group of notches comprising a blocking member having projections normally presented in the path of said certain ones of the notches of said first mentioned group, a ratchet feed mechanism capable of imparting a delayed movement in response to an initiation under the control of each transverse alignment of notches in said secondary notches, and means for rendering said ratchet feed mechanism responsive to any number of signal conditions allotted to said first mentioned and said second mentioned groups of notches.

4. In a linecasting and composing machine having a plurality of selective functions to be actuated with variant time impulses, a plurality of selectable elements each allotted to the actuation of an associate function, a delay mechanism for introducing a time lag in the actuation of certain ones of said functions, means for initiating said delay mechanism in response to the operation of certain ones of said selectable elements comprising duplicate members coded similarly to said certain ones of said selectable elements, means for normally blocking the selection of said elements while permitting the selection of their duplicate members, a common actuator controlled by any of said members for initiating said delay mechanism, and means under the control of said delay mechanism operative after the lapse of a predetermined time interval for rendering said blocking means ineffective.

5. In a linecasting and composing machine, a plurality of matrix release actuators, a plurality of magazine shift actuators, a plurality of assembler mechanism rail shift actuators, a set of permutation code bars responsive to perforations in a tape for affording an individual transverse alignment of notches, a plurality of selectable elements presented transversely with respect to said bars and each individually selectable during the occurrence of an associated transverse alignment of notches, means for actuating said matrix release members under the control of certain of said elements, means to control said magazine shift actuators under the supervision of others of said plurality of elements, means to control said rail shift actuators under the supervision of others of said plurality of elements, and a delay device for prolonging the time interval of operation of said magazine shift control means and said rail shift control means beyond the time interval of said matrix actuating means.

6. In a keyboard apparatus, a plurality of manually controllable keylevers, a set of notched permutation code selector bars, a plurality of selectable elements individually conditioned for selective operation by said bars and operatively associated with said keylevers, a record reader responsive to perforations in a tape for selectively positioning said bars to condition one of said ele-

- ments, and means for delaying the selective response of certain ones only of said elements comprising extended portions associated with said bars having duplicate code notched areas, duplicate selectable elements each corresponding with said certain ones of said first mentioned elements, and a common actuator under the control of said duplicate elements for initiating the intervention of said time delay mechanism.
7. In a keyboard apparatus, a plurality of key-levers, a corresponding plurality of members for actuating said keylevers, an automatic signal controlled mechanism for selectively conditioning and actuating each of said members to operate its related keylever, and duplicate selectable members corresponding to certain ones only of said first mentioned members and initially conditioned in response to their common signals to modify the selective response of said certain of said first mentioned members.
8. In a keyboard control apparatus, a plurality of function control keylevers, a set of notched code bars, a plurality of selectable members associated with said keylevers and collectively conditioned by said bars, means for shifting said bars in accordance with the permutations of a code, means for actuating one of said members in accordance with the disposition of said bars, a mechanism for delaying the response of certain ones only of said members for a time interval exceeding the response of the others of said members, duplicate selectable elements conditioned concurrently with said certain of said members, and an actuator for initiating said delay mechanism under the control of said duplicate selectable elements.
9. In a line composing machine, a plurality of matrix storage magazines, a composing mechanism operatively associated with each of said magazines selectively, a selector apparatus including a signal controlled means, a pair of selectable elements in said apparatus associated with each of said magazines responsive to said means for initiating its operative association with said composing mechanism, a member for normally preventing the selective conditioning of said selectable elements, and a multiple feed actuating device for withdrawing said member after the lapse of a predetermined time interval following the reception of its signal by said selector apparatus.
10. The combination set forth in claim 9 in which said individual selectable elements control associative contact pairs, and electromagnets associated with said magazines under control of said contact pairs for effecting the selective association of said magazines with said composing mechanism.
11. A method of correlating miscellaneous ones of a primary system of code elements to a common intermediary which comprises the steps of grouping together secondary elements selectable concurrently with corresponding primary system elements, and actuating the common intermediary under the control of any element of said secondary order.
12. A method of correlating a sporadic arrangement of permutation elements which constitutes the steps of segregating duplicate elements of certain of said elements to be correlated in a group, operating a common actuator by the stimulus of the selective movement communicated to it from any element of said group, and performing a preparatory function under the control of said common actuator.
13. A method of correlating a sporadic arrangement of permutation elements constituting the steps of grouping duplicate ones of certain of said elements to be correlated, presenting a common actuator in position for receiving the selective movement communicated from any one of said duplicate elements of said group, and performing a preliminary control function under the supervision of said common actuator.
14. A method of correlating certain separated individually selectable elements of a permutation arrangement which comprises the steps of grouping together duplicate elements selectable concurrently with the selection of their corresponding selectable elements, presenting in the field of motion of said duplicate elements a common motion recipient to embrace the range of said group, and actuating a preparatory control function under the supervision of said motion recipient.
15. A method of correlating certain separated ones exclusively of the individually selectable members of a permutation arrangement in which alternative signal conditions are factors of a definite unit signal comprising the steps of grouping together duplicate members having signal conditions similar to those of certain of said permutation arrangement and selectable concurrently therewith, presenting in the paths of movement of said duplicate members a common motion recipient to embrace the range of the group thereof, and actuating a preparatory control function under the supervision of said motion recipient.
16. A method of correlating certain separated ones of the individually selectable members of a permutation arrangement in which alternative signal conditions are factors of a definite unit signal which comprises the steps of grouping duplicate members having signal elements similar to all but one of the elements of two of said permutation arrangement and selectable concurrently with the selection of either of said two associated members of said arrangement, presenting a motion recipient common to said members of said group, and actuating a preparatory control function under the supervision of said recipient.
17. A method of correlating sporadic pairs of a system of selectable code elements which comprises the steps of grouping secondary selectable elements selectively conditioned concurrently with the selection of either element of each of said pairs, operating a common motion recipient by said secondary selectable elements, and initiating a supervisory control function in response to the actuation of said supervisory element.
18. In a linecasting and composing machine, an automatic control unit for initiating line composing operations and collateral control functions including a principal group of control elements each individually selectable in response to a code signal, a group of auxiliary elements each element being selectable in response to the signals of one or more of the elements of said principal group, a common motion recipient actuated by the movement of any of said auxiliary elements, and a mechanism of supervisory control actuated by said common motion recipient as a result of the movement of one of said auxiliary elements for directing the performance of its corresponding principal element.
19. In a mechanism for supervising and controlling a plurality of operations, a set of selectors permutably positionable, a plurality of prin-

5 cipal function members assembled adjacent said
 selectors in a predetermined arrangement to ac-
 commodate its control operations, each of said
 members being individually responsive to one per-
 10 mutable disposition of said selectors, a plurality
 of auxiliary members assembled together adja-
 cent an extended portion of said selectors and
 each responsive by a selective movement to per-
 mutable dispositions and associated with one or
 15 more of said principal members, a supervisory
 apparatus for modifying the performance of said
 principal function members, and a common mo-
 tion recipient initiated by the selective move-
 ment of any of said auxiliary members for actu-
 ating said supervisory apparatus.

20 20. A method of achieving any predetermined
 number of selective conditions naturally avail-
 able in accordance with a geometric progression,
 which comprises the steps of grouping together
 25 a plurality of selectable elements, and coding
 selecting members to select each selectable ele-
 ment in response to a number of code combina-
 tions equal to one of the terms of said geometri-
 cal progression so that the arithmetical total of
 such terms shall equal said predetermined mem-
 ber.

21. A method of making a common motion re-

5 cipient responsive to any arbitrarily determined
 number of permutation code combinations
 naturally available in accordance with a geo-
 metrical progression, which comprises the steps
 of modifying certain ones of a set of permutation
 bars with respect to certain selectable elements
 so that one or more of said elements shall be
 responsive to a plurality of code combinations
 equal in number to one of the terms of said pro-
 10 gression and the total number of code combina-
 tions to which said elements shall be responsive
 shall equal said predetermined number as well
 as the sum of certain of the terms of said pro-
 gression, and presenting said common motion
 recipient in the field of selectional movement of
 15 said certain elements.

22. A method of correlating a sporadic arrange-
 ment of permutation elements which comprises
 the steps of grouping together duplicates of cer-
 20 tain of said elements to be correlated, interasso-
 ciating a common actuator with all of said dupli-
 cates, motivating said common actuator under
 the control of any one of said duplicates, and
 performing a preparatory function affecting any
 of the certain of said elements under the control
 25 of said common actuator.

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