Oct. 3, 1939. L. M. POTTS 2,174,596

CODE BAR CONSTRUCTION

Original Filed March 25, 1931

FIG. 1

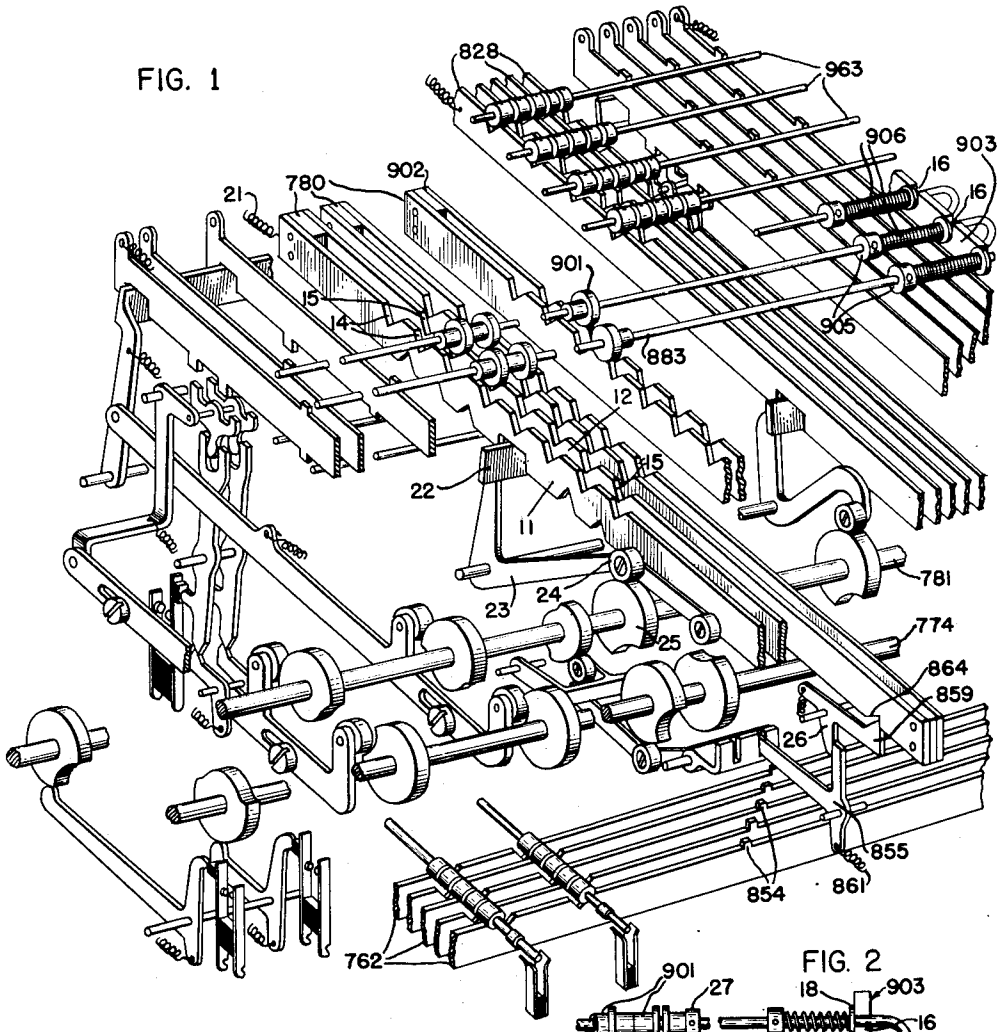


FIG. 2

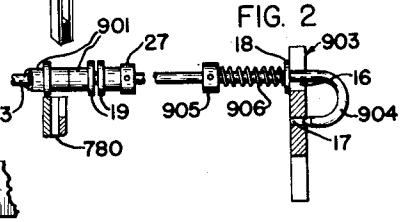
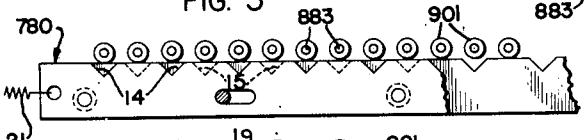


FIG. 3



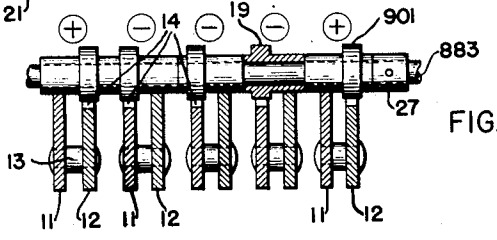


FIG. 4

INVENTOR.
LOUIS M. POTTS

BY

H. B. Whitfield.
ATTORNEY.

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CODE BAR CONSTRUCTION

Louis M. Potts, Evanston, Ill., assignor to Teletype Corporation, Chicago, Ill., a corporation of Delaware

Original application March 25, 1931, Serial No. 525,189. Divided and this application December 31, 1937, Serial No. 182,661

7 Claims. (Cl. 178—33)

The present invention relates to selecting or translating mechanisms such as are used in telegraphic signaling apparatus, and particularly to code bar construction for rendering versatile the distribution and arrangement of selectable members.

This is a divisional application of which the parent application is copending Serial No. 525,189 filed March 25, 1931.

In mechanical selectors, permutative characteristics have been vested in the selecting members in which case an individual and permanent arrangement of clearance notches is carried by said permutably displaceable selecting members, or where the notches of the selecting members are arranged in regular recurrence and do not carry the code pattern, the code characteristics are made permanently a part of the selectable elements.

Accordingly, the object of the present invention is the provision of a code selecting apparatus in which each selecting member is equipped with alternative selecting characteristics in the proximity of each code position and in which the individually selectable factors are provided with transposable elements which may be arranged predeterminedly to present any desired code in any of a number of different positions.

Other features of the invention will appear from the following description, reference being had to the accompanying drawing in which like reference characters designate corresponding parts throughout and in which,

Fig. 1 is a perspective view of a selector mechanism such as forms part of the disclosure in the aforementioned copending application;

Fig. 2 is a transverse sectional view through one of the individually selectable elements featuring its manner of mounting and support as well as its cooperation with a typical one of the selector bar assemblies;

Fig. 3 is a transverse sectional view taken longitudinally along a line parallel to one of the selector bar assemblies; and

Fig. 4 is an enlarged detail sectional view similar to that illustrated in Fig. 2 but featuring particularly the interchangeable code elements and their manner of assembly.

Though the instant invention concerns itself primarily with the novel principles affecting only certain ones of the code bars and the selectable elements illustrated in Fig. 1, so much of the description will be included herewith as will assist in an understanding of the application of this improvement to a system such as that which forms the subject matter of the parent application referred to above. Also conforming with this plan of reference, certain ones of the identification characters used in said parent application are repeated in the accompanying drawing in order that corresponding parts may be more easily identified.

The reference character **762** indicates a set of primary code selecting bars which may be permutably positioned by the use of a receiving distributor of the type shown in U. S. Patent No. 1,821,110 or of the type shown in U. S. Patent No. 1,811,131. Also under the supervision of this type of distributor are a pair of control shafts more particularly referred to as a sequence shaft **774** and an operating shaft **781**. Rotation is imparted to shafts **774** and **781** by means of friction clutches through the gears **775** and **779**, illustrated in said copending application. Shaft **774** is adapted to be arrested in any of four positions at quadrature. Shaft **781** is provided with a stop disc for effecting its arrest at a single angular position during its cycle. The supervision of the stop disc arresting pawl is subordinated to a cam carried by the distributor mechanism so that for each rotation of the distributor shaft, operating shaft **781** is permitted one cycle of rotation. Suitable escapement apparatus, shown in said parent application, supervises the quadratic control of shaft **774**. This also is under the supervision of the distributor through the instrumentality of certain ones of the code selecting bars **762**. The escape mechanism referred to is provided for adapting the selector to a special case shift supervision, the details of which are not material to the present disclosure.

In Fig. 1 are two series of code bars indicated **780** and **828**. The code bars indicated **828** are five in number and are of the single type having permanently associated notch and lug attributes for effecting the selection of certain ones of the individually selectable elements denoted **963**. The series of code bars **780** form the subject matter of the present invention. Their number corresponds to the requisite selective possibilities, or in other words, to the requirements of the particular system. Since the basic unit code employed in accordance with the instant embodiment contemplates a five unit permutation, the total number of said bar assemblies **780** will be some number which is a multiple of five.

In contemplation of the conventional stock quotation practice, the present system has been arbitrarily designated to make use of three stock selection signals, each having, as aforesaid, the

constituent five unit code or together a total code made up compositely of the three five unit code signals. Where the total selecting possibilities of but a single set of five code bars are adequate, it will be understood that the code bar assemblies 780 need but include five, to correspond with the minimum that may be associated with a single stock selecting signal.

All of the code bars 780 as well as those indicated 828 are supported for limited longitudinal reciprocal movement. Referring now particularly to the code bar assemblies 780, each will be noted to consist of a pair of notched bars 11 and 12, Fig. 4, secured together as at 13 by a rivet and spacer element or in any other manner for maintaining rigid and in parallel alignment each pair of bars 11 and 12 which comprises an assembly 780. The selector notches 14 of each of the several bars 11 are located at regular spaced intervals, while those 15 of companion bars 12 are likewise equally spaced but located transversely at intermediate intervals with respect to the notches 14. As each code bar assembly 780 is moved from its right-hand (marking) to its left-hand (spacing) position, Fig. 3, the relative presentation of the notches 14 is transposed with those of the notches 15 so that accordingly, beneath each selectable element 883, there may be presented one or the other of the notches 14 or 15 depending upon the relative placement of the particular code bar assembly 780.

Considering for the moment the individually selectable bars 883, it will be noted from Fig. 2 that these members are supported in spaced relationship each from the other within suitable slots 16 in a comb 903. The end of each selectable element or rod 883 is bent over as at 904, and its extremity is conically pointed for insertion into a small opening 17 beneath each of the slots 16 of said comb 903. The seating arrangement between the pointed end of the turned down portion 904 and its opening 17 constitutes a fulcrum when expansion spring 906, confined between a stationary collar 905 on rod 883 and a follower washer 18 at the opposite end of said spring 906 exerts a mild influence towards rotating each element 883 counterclockwise, as viewed in the illustration of Fig. 2.

This movement on the part of each selectable element or rod 883 is restrained, however, when one or more of its roller flanges 19 is obstructed because of encounter with an unnotched portion of either of the bars 11 or 12, Fig. 3. For each arrangement of flanged collars 901 on any one of the selectable elements 883, there is suited a particular distribution of the code bar assemblies 780 which cause to be presented the clearance notches 14 so as to permit said selectable element 883 to respond to the urge of its spring 906 and be moved (counterclockwise, as viewed in Fig. 2) until its extremity performs some particular function for which it is designed, such as the closing of a pair of contact points, the interference with a particular moving element, or other selective function as is well-known in the printing telegraph art.

In the instant embodiment, each one of the assemblies 780 is urged by an individual spring 21 towards its left-hand position, Figs. 1 and 3, and is returned to its normal or right-hand position by a common return bail 22, the latter being mounted on a bell crank 23 which is actuated through its follower roller 24 by the cam 25 on the aforesaid shaft 781. Normally each assembly 780 is held in its right-hand position by a tensioned latch 859, an integral portion of which constitutes a trigger 86 that is actuated by another bell crank 855 under tension of spring 861 to rotate counterclockwise when permitted to do so by the selective withdrawal of its associated code bar projection 854.

The manner of positioning and resetting the code bar assemblies 780 is not vital to the present invention, any of several well-known methods being equally adaptable. From Fig. 4 it may be observed that each of the flanged collars 901 is so proportioned that its flanged disc 19 is situated centrally in one-half of its longitude so that by reversing any one of the collars, its flange may be brought into alignment with one or the other of the bars 11 or 12. When a collar is placed on the rod 883 flange portion foremost, its code position is resolved in a definite manner different from that when said collar is applied flange portion rearmost. Accordingly, any code combination may be provided for in accordance with the distribution of the collars 901.

From this, it may be seen that each selectable element 883 with its set of collars 901 is capable of assignment to any one of the thirty-two permutations (in a five unit code). Meanwhile, it is to be recalled that each code bar assembly 780 is provided with both marking and spacing characteristics in the proximity of its several selecting portions as a result of which any code combination or distribution in the shifting arrangement of said assemblies 780 establishes a code condition for selecting one of the elements 883 no matter where said element may be disposed throughout the length of the code bar assembly group comprising the several units 780.

In addition to the versatility afforded by the principles disclosed and described above, further advantages resulting from this arrangement are manifest by a freer action between the selecting bars 780 and the elements 901 with which they are frequently in contactual engagement. Each collar 901 rolls freely on its shaft 883 and the several of them are assembled and confined by a stationary collar 27 at one end and a similar securing element at the other end. The characteristic of each collar 901 is, therefore, that of a rollar while cooperating with either one of the bars 11 or 12, and for this reason, it may be noted that considerably less friction will result than in the case of conventional types of selector and selectable components.

While the present invention has been explained in contemplation of a specific embodiment, it is recognized that numerous modifications and variations may be made without departing from the essentials thereof. Accordingly, it is not intended to be limited by the specific details of the accompanying drawing nor by the particular language employed in the foregoing specification except as indicated by the hereinafter appended claims.

What is claimed is:

1. In a code translator mechanism, a set of selectable bars one for each used signal combination of a permutation code, a set of two-position code bars of identical form corresponding in number to the number of component elements of a code, each code bar having projecting portions and intervening notches corresponding respectively to the two alternative characteristics of each code element, and code projections corresponding in number to the number of said elements in a code carried by each selectable bar

and respectively positioned thereon according to the character of a particular signal to cooperate with one or the other of the projections and notches of the respective code bars whereby the code bars control the selectable bars in accordance with the respective elements of the code.

2. In a permutation selector mechanism, a set of selector elements each comprised of a plurality of notched bars, the several bars of each element having their notches staggered so as to be at variance with other notches of bars forming part of the same element, and a plurality of selectable members traversing said elements and having portions presentable opposite predetermined bars of ones of said elements.

3. A method of increasing the selective possibility of a permutation selector mechanism employing coded selector elements traversed by individually selectable members which comprises the steps of providing multiple selecting areas in staggered alignment under the control of each selectable element, and increasing the number of selectable members by arranging additional ones of them to be served by the increment of said multiple selecting areas.

4. In a permutation selector, a set of elements each positioned by a signal impulse comprising a factor of a permutation code, a pair of bars comprising each of said elements having notches edgewise thereof, the notches of each bar being offset with respect to the notches of its associated bar, and a plurality of selectable members each having projections presentable opposite either of the bars of each element.

5. In a code translator mechanism for a signaling system wherein the signals are composed of different permutations of a definite number of elements capable of two different characteristics, a plurality of selectable members one for each used signal combination of a permutation code, two-position permutation members each composed of two portions rigidly fixed together each of said portions having a series of notches situated in intermediate staggered relation to the notches of the other of said portions, and code projections associated with said selectable members equal to the number of said elements and individually distributed thereon according to the characteristic of the elements of a signal.

6. In a code selecting mechanism, a set of selecting members arranged in parallel alignment, a plurality of selectable devices arranged in an alignment traversing said parallel arrangement of selecting members, a set of reversible projecting elements associated with each of said selectable devices, and portions on said selecting members presentable in the proximity of said reversible projecting elements affording either blocking or permissive characteristics thereto.

7. In a code bar selector, a set of selecting members each comprised of a pair of bars, said bars being of identical notch and lug arrangement with the lugs of one of said bars opposite the notches of the other of said bars of each pair, a plurality of selectable devices each having a set of projections corresponding to said members, and means for associating said projections with the bars of each of said pairs alternatively.

LOUIS M. POTTS.