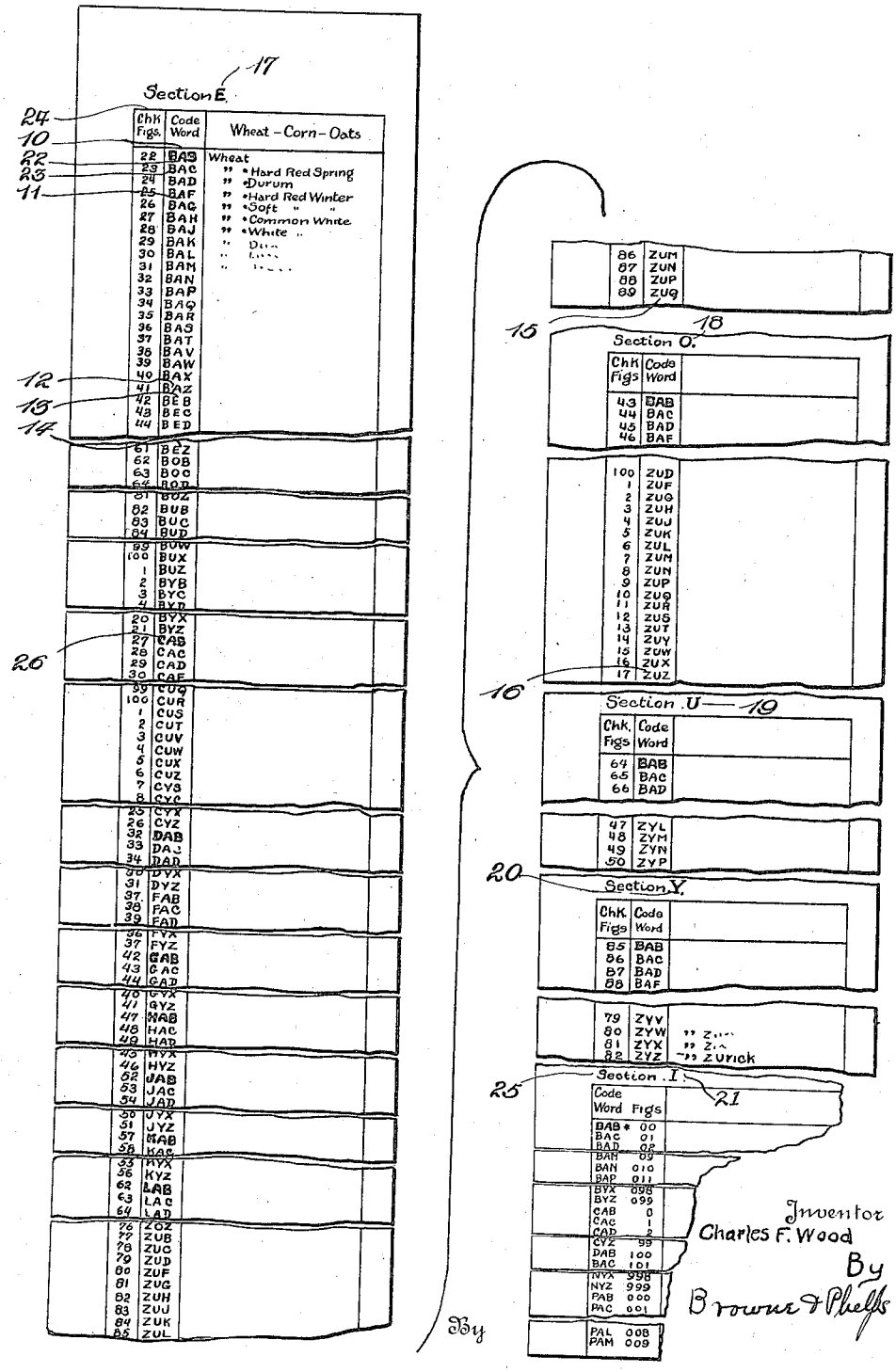
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C. F. WOOD

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CODE TABLE

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UNITED STATES PATENT OFFICE.

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CODE TABLE.

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To all whom it may concern:

Be it known that I, CHARLES F. WOOD, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Code Tables, of which the following is a specification.

This invention relates to a set of tables and has as an object the provision of an article of this nature by the use of which a message may be written in a code whereby a series of pronounceable code words substantially all of which shall have ten letters may be formed and whereby each of said code words may be made up of syllables each having a definite meaning.

A further object of the invention is the provision of a table comprising a series of sections each section comprising substantially the same combinations of letters with means for designating which section is to be referred to to learn the meaning intended to be conveyed by any syllable.

A further object is the provision of a table comprising a series of sections each comprising substantially the same combinations of letters and each combination associated with a check number, the check number associated with the same combination in different tables being different whereby the sum of the check numbers may be transmitted with the message to assist in detecting errors in transmission when the message is decoded.

An illustrative embodiment of the invention is shown in the drawing which shows a series of fragments of the table and of different sections thereof.

For purpose of illustration the drawing begins with section E and shows fragments of sections O, U, Y, and I. It will be understood that a section A may be provided arranged on the same principles.

As shown the table comprises a column 10 for syllables 11 each made up of two consonants separated by a vowel thus providing pronounceable syllables. Sufficiently extended fragments of each section of the table are illustrated to show how syllables may be formed which begin and end with each of the consonants, utilizing each of the vowels as a central letter in turn. Thus B A B will be followed by B A C to B A Z at 12 and B E B at 13 to B E Z at 14 each in turn to Z U Z. Section E of the table stops at Z U Q at 15, and section U at Z Y P since the remaining syllables were not needed but section O is continued to Z U Z as at 16. The vowel I is not utilized as a center of one of these syllables for a reason to be explained.

By dividing the table into sections each provided with a designating letter as E at 17, O at 18, U at 19, Y at 20 and I at 21 the possible meanings that may be ascribed to the syllables which can be made of two consonants separated by a vowel are multiplied by the number of designating letters. To increase the readiness with which the combinations of the syllables into telegraph words of nine or ten letters each may be pronounced, when these combinations are made as explained below, vowels are used for the designating letters.

For purposes of conveying meanings each of the syllables in each section may be considered as having four letters, since the designating letter will always be present by inference when any syllable is used. For instance B A B at 22 is E B A B, B A C at 23 is E B A C. As a matter of practice however it is only necessary to use the designating letter before the first syllable taken from any section, a designating letter being used whenever a change of section is to be indicated. Moreover it may be understood that whenever in beginning a message no designating letter is given, the first section is to be read, thus lessening the number of letters to be transmitted.

In using the table to write a code message the syllables will be written down in order, with the necessary designating letters, and the resulting string of syllables will be divided into telegraph words of nine or ten letters each. The designating letter may fall at the beginning, middle or end of one of these words. When placed at the end of a telegraph word the designating letter will indicate that the first syllable of the following word is taken from the section indicated. With this liberty as to location of the designating letter the telegraph words may be made to contain ten letters in a large proportion of instances, being formed of three syllables and one designating letter. Consequently by use of the table a large amount of information may be sent cheaply and in a readily decoded form.

Since the telegraph words, as sent by the operator are meaningless to him a mistake in sending may very readily be made and is impossible of detection by the receiving

operator. It is therefore very important to have the message itself carry not only the evidence of its correct transmission but some means whereby the correct reading may be guessed in the event of a mistake. Both of these elements are provided by the column 24 of checking figures and the arrangement of the figures therein in conjunction with a section 25 of the table which provides for the writing of three place numbers in the formed syllables. The checking figures run from 1 to 100 and repeat, with the exception of some figures skipped for a reason to be explained. When the syllables to be used in a message are chosen their checking figures are written down in a column and added. The sum is then looked up in section I and the corresponding syllable is written as the last syllable in the message, preceded by the letter I as set forth in explaining the use of the designating letters. When the message is decoded the checking figures corresponding to the syllables received are added and should agree with the number in section I indicated by the last syllable of the message.

The element of furnishing an inkling of the correct message in the event of a mistake being made is furnished by the order of recurrence of the letters. There are twenty consonants, hence if a mistake is made in the last consonant the checking sum will be from 1 to 19 points in error. The same fact, the number of consonants, results in a change of central vowels on each 20 points hence a mistake in this element will result in an error of 20, 40, 60, or 80 points. First consonants change on 5's hence an error in this element will result in an error of 5 to 95 points. The same code word in different sections is always made to vary 21 points, hence if the checking sum is 21 points or a multiple thereof in error, a different table must be tried.

The reason for the skipped figures in the checking column will be readily apparent. B A B at 22 has 22 as a checking figure. This would result if a section A were utilized beginning with B A B having a checking figure 1 on the above stated rule that like syllables in different sections have checking figures varying by 21, E B A B being 22 and there being 100 syllables beginning with B. E C A B at 26 would be also 22, hence if one were erroneously transmitted for the other the checking figures would be of no assistance. Moreover a like difficulty would occur throughout the table in connection with E B A C and E C A C through to E Y U Z and E Z U Z. Therefore a skip in figures is necessary when the first consonant changes. Since by the law stated first consonants change on 5's a skip of five figures is made each time.

It may be desirable for some purposes to use single consonants to represent numbers from 0 to 9. In this event the single consonant would be preceded in the telegraph word by the designating letter I. Consequently to avoid confusion the vowel is omitted from the formed syllables in the tables.

Various modifications may be made in the physical embodiment of the invention, it may be printed on one sheet, on several sheets or on the pages of a book, various other tables with arbitrary arrangements may be used in conjunction therewith all without departing from the spirit of the invention.

I claim:

1. A code table comprising, in combination, a column of syllables divided into sections, the syllables in each section being substantially like the syllables in other sections, each syllable comprising two consonants separated by a vowel, a designating vowel for each section and a column of arbitrary meanings one for each syllable, the meanings for like syllables in the various sections differing.

2. A code table comprising, in combination, a column of syllables comprising three letters each, each of the first letters being repeated a predetermined number of times, a column of arbitrary meanings and a column of checking figures one for each syllable whereby an error in first letter may be corrected by observation of the amount and nature of the error.

3. A code table comprising, in combination, a column of syllables comprising three letters each, each of the middle letters being repeated a predetermined number of times, a column of arbitrary meanings and a column of checking figures one for each syllable whereby an error in middle letter may be corrected by observation of the amount and nature of the error.

4. A code table comprising, in combination, a column of syllables comprising three letters each, each of the last letters being repeated a predetermined number of times, a column of arbitrary meanings and a column of checking figures one for each syllable whereby an error in last letter may be corrected by observation of the amount and nature of the error.

5. A code table comprising, in combination, a section having a column of syllables comprising letters each of which recurs a definite number of times in succeeding syllables, a column of arbitrary meanings and a column of checking figures in substantial numerical order to a number of three figures and repeat, and a section having a column of syllables and a column of numbers running to 999 each number standing opposite one of said syllables and each section provided with a designating letter.

6. A code table comprising a plurality of sections each provided with a designating letter, each section comprising a column of syllables, the syllables in all sections being substantially the same, a column of checking figures for each of certain of the sections, there being a checking figure for each syllable in such sections, the checking figure for any syllable in any section varying by a definite amount from that of the checking figure for the same syllable in the preceding and in the following sections, whereby an error in transmission of the designating letter can be detected.

7. A code table comprising a plurality of sections each provided with a designating letter and each section comprising a column of syllables of three letters each, the syllables in all sections being substantially the same, some of the letters in the syllables recurring a number of times in succession in each section and changing at predetermined intervals, the intervals of change for each letter being different from the others, a column of checking figures for each of certain of the sections, the checking figures for any syllable in any section varying by a definite amount from that of the checking figure of the same syllable in the preceding and the succeeding section, and a section having a column of numbers running to 999 one number placed opposite each syllable of the syllable column in that section.

In testimony whereof I affix my signature.

CHARLES F. WOOD.