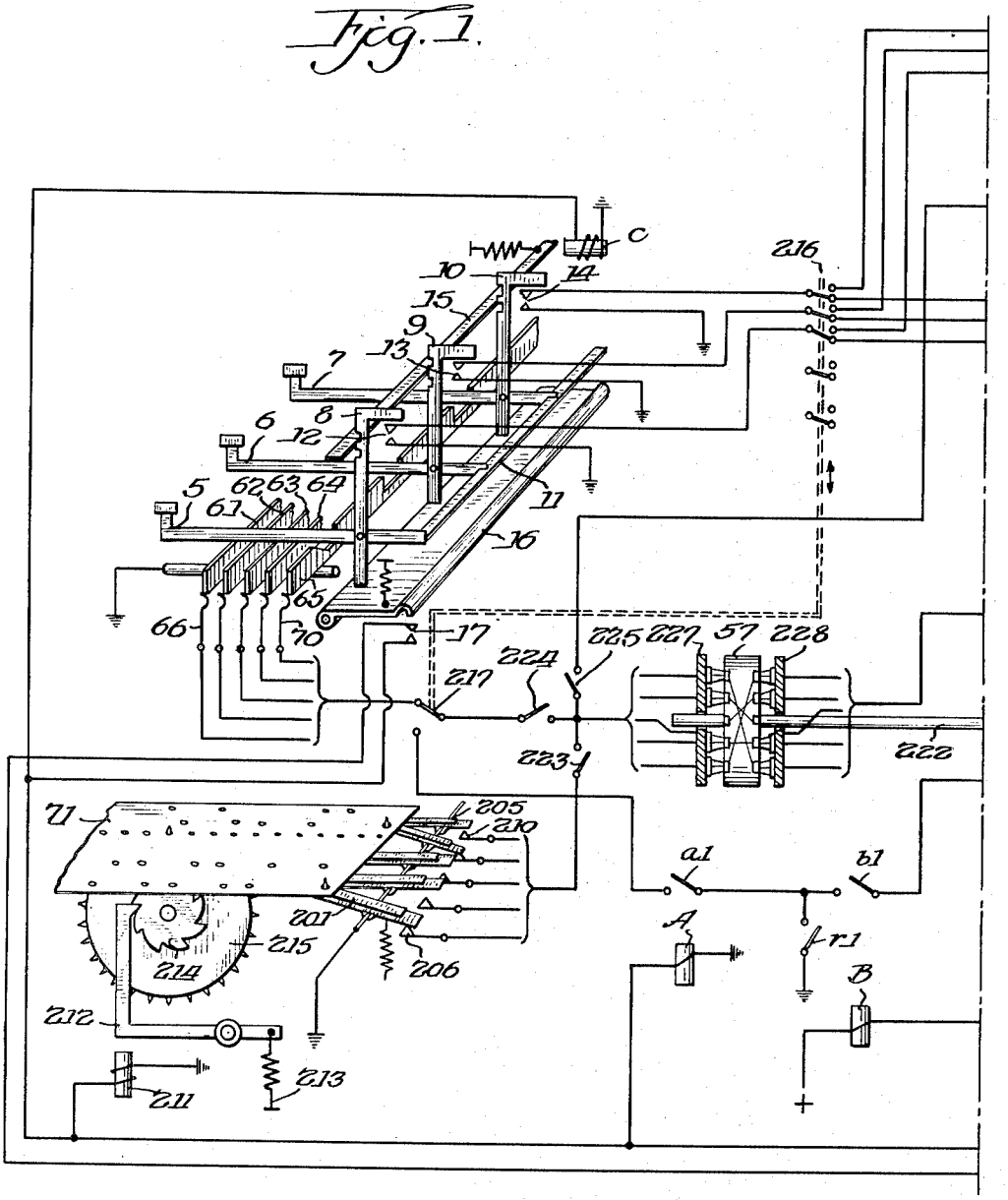
July 3, 1956 R. HELL 2,753,034

CODING MACHINE

Filed May 6, 1952 3 Sheets-Sheet 1

Fig. 1.



Inventor:
Rudolf Hell.

By. [signature] Atty.

July 3, 1956 R. HELL 2,753,034

CODING MACHINE

Filed May 6, 1952 3 Sheets-Sheet 2

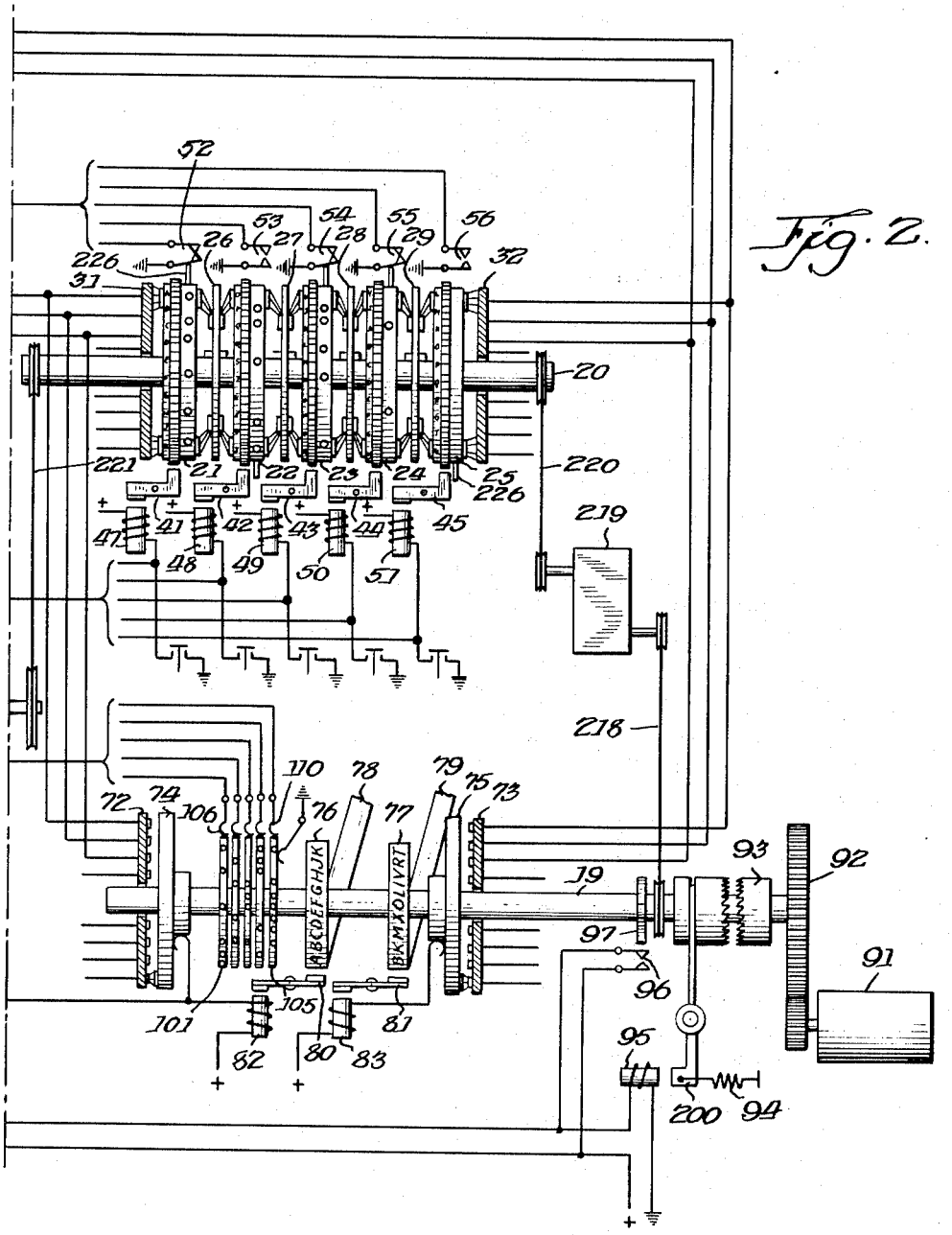


Fig. 2.

Inventor.
Rudolf Hell.

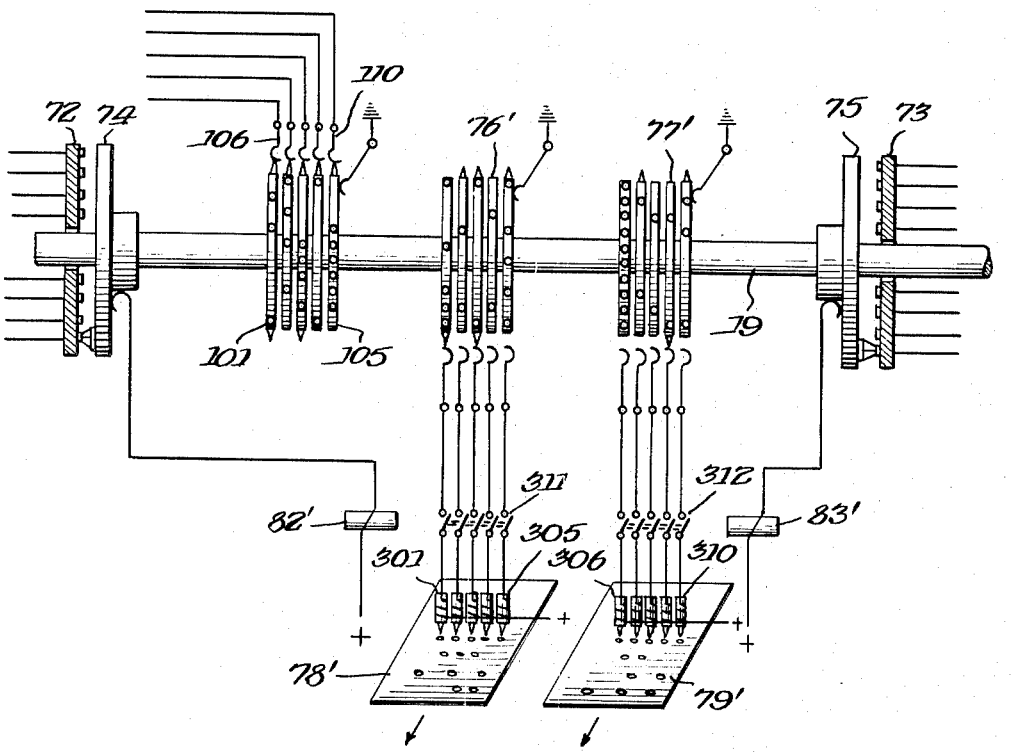
By. Atty.

July 3, 1956 R. HELL 2,753,034

CODING MACHINE

Filed May 6, 1952 3 Sheets-Sheet 3

Fig. 4.



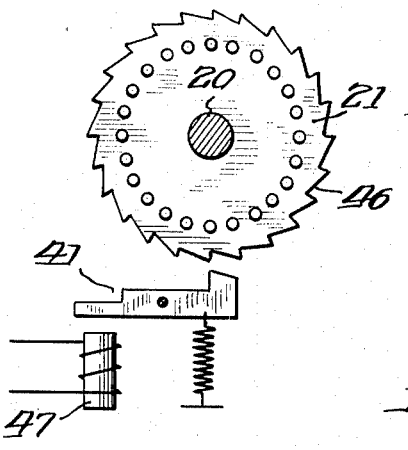


Fig. 3.

Inventor:
Rudolf Hell.

By. Attorney.

United States Patent Office

2,753,034

Patented July 3, 1956

2,753,034

CODING MACHINE

Rudolf Hell, Kiel-Dietrichsdorf, Germany

Application May 6, 1952, Serial No. 286,406

Claims priority, application Germany May 7, 1951

19 Claims. (Cl. 197—4)

This invention is concerned with a coding machine of the type in which electrical circuits assigned to individual symbols are interchanged, arbitrary symbols being assigned to the interchanged circuits and such arbitrary symbols being typed or otherwise signalled or characterized.

Circuits are in known machines of this type closed by depressing a symbol key. These circuits extend over one or more permutation drums or disks and effect signal lamps. The individual drums have as many contacts as there are symbols, and the conductors between the current input and output contacts are within the drums interchanged, as desired. In one of the known structures the first drum is, responsive to each key operation, always advanced by one step, and such drum, after completing each revolution, sets in motion the next successive drum. The motion of the individual drum is released directly responsive to the operation of a key. Coding machines of this type permit only very limited keying speed, because they require application of relatively great keying force which must overcome the frictional factors occurring in the operation of the drums.

The present invention provides for a coding speed of seven releases per second, that is, greater than ever obtained before, and thus permits direct connection of the coding machine with commercial teleprinters.

The machine according to the invention comprises a desired number, for example, five, permutation disks of generally known construction which are all disposed on a common shaft. The individual permutation disks carry in known manner, circularly disposed on both sides, the contacts associated with the keying mechanism. Between each two permutation disks is arranged a wiper disk provided on both sides with resilient contact wipers which are associated with the individual contacts of the corresponding permutation disks. In accordance with the invention, the permutation disks are freely rotatable on the common shaft, and the wiper disks are keyed for rotation therewith. The shaft is driven by a motor over a clutch which is operative to cause rotation thereof responsive to operation of a key. The wipers on the wiper disks, which rotate with the shaft, are in frictional engagement with the contacts on the permutation disks, and the latter are thus carried along by friction and rotate with the wiper disks. Each permutation disk is associated with a magnet individual thereto, and such magnet is adapted to be selectively operated so as to attract an armature which engages a ratchet on the associated permutation disk to stop it. These magnets are the holding magnets of the structure. The high operating speed is secured by the motor drive for the entire mechanism. The frictional brushing action, which takes place between the wipers of the wiper disks and the contacts on the permutation disks, keeps these contacts clean and provides for faultless operation thereof.

In accordance with another object and feature, the setting of the individual permutation disks, which is during each switching period controlled by the actuation of the holding magnets, is obtained by individual keys so that such setting is primarily dependent on the written text. The available keys may, for example, be subdivided into five groups, and individual keys may be assigned to the different groups as desired. Each of these five groups may affect the holding magnet of a permutation disk so that one or the other such disk is set, depending on the actuation of a key in one or the other group.

A further object provides for an interchanging or permutation mechanism between the key conductors and the holding magnets of the permutation disks, which effects a desired interchange of the individual key groups relative to their associated holding magnets.

Still another object and feature provides for the setting of the individual permutation disks by a punched five-figure tape which is fed into the machine. Each row of perforations on the tape may be assigned to a holding magnet of the permutation disks, and such assignment can again be interchanged by an auxiliary permutation element. It is in this manner possible, for example, to carry out a stepping cycle controlled by the perforations on the tape and to prevent operation of the holding magnets for nonperforated intervals thereof. Another possibility for effecting the operation of the holding magnets by means of a perforated tape is to successively rotate, for example, the first, second, third, etc. permutation disks, and causing each to rotate always by a number of steps in accordance with the number of perforations disposed in the corresponding perforation row. An additional permutation may again be effected with regard to the association of the perforation rows with the permutation disks.

It is further possible to introduce, in addition to the controlled stepping of the permutation disks an auxiliary mutual interaction therebetween, for example, by disposing on each permutation disk peripherally thereof a sequence of contacts for controlling the operation of the successive or any desired disk at such times when a certain contact is actuated by an associated cam.

It is necessary for carrying out the coding to provide for a predetermined starting or normal position of the individual permutation disks. This is accomplished by assigning to the holding magnets manually actuated keys which effect, responsive to depression thereof and while the main shaft is being rotated, a successive switching of the magnets always by one or more steps, until the permutation disks reach the desired position which is indicated by a mark visible through a window disposed over the disks.

The recording of the text which is fed to the machine and of the code text takes place by a special printer mechanism. The latter comprises a rotatable contactor for the conductor group which enters the permutation disks and a similar contactor for the conductor group leaving the disks. On the shaft of these contactors are disposed two type wheels, each conductor or line contact being associated with a symbol or letter thereon. Underneath each type wheel is disposed a printer magnet which is actuated at moments when the conductors in the group carry current connected thereto over the keying mechanism. Accordingly, one of the type wheels will cause printing of that letter or symbol which corresponds to the keyed symbol, while the other type wheel will cause printing of the corresponding coded letter or symbol.

The new machine may thus be used for coding, and by a simple switching operation it may likewise be used for decoding.

The invention will now be described more in detail with reference to the accompanying diagrammatic drawings showing an example of the new coding machine. In these drawings,

Fig. 1 shows the keying mechanism and various control means;

Fig. 2 shows on top thereof the permutation mechanism and therebelow the printer or recording mechanism and on the right of the latter the drive means;

Fig. 3 illustrates details with respect to a permutation disk; and

Fig. 4 shows modifications to be made when the machine is to be used for perforating a tape.

Fig. 2 should be arranged at the right of Fig. 1 with corresponding conductors in alignment.

The keying mechanism comprises a number of keys, three of which are shown and indicated by numerals **5**, **6** and **7**. These keys are connected with a common bearing rail **11**, and each key carries an angular lever, as indicated at **8**, **9** and **10**. Actuation of these keys operates respectively associated contacts such as **12**, **13**, **14**. A suitably journalled locking rail **15** is provided which keeps the actuated individual keys closed for the duration of a coding cycle. The locking of the keys is by suitable means effected responsive to actuation of the bar **16** which is operated by the levers **8**, **9** and **10**. The bar **16** closes a contact **17** which controls the drive mechanism indicated in Fig. 2. There are usually 26 contacts such as contacts **12**, **13**, **14**, corresponding to the 26 keys of the machine, and these contacts connect a common negative terminal to respectively associated 26 inlets of the permutation mechanism indicated in Fig. 2. The permutation mechanism shown on top of Fig. 2 has a shaft **20** and freely rotatable on this shaft are five permutation disks **21–25** of generally known structure. Between these disks are disposed four wiper disks indicated at **26–29** which are keyed to the shaft and rotatable therewith. A wiper disk **31** is provided which serves for the current input, and another wiper disk **32** which serves for the current output. Each of the wiper disks **26–29** has on each side, uniformly distributed thereon, twenty-six wipers. Identically placed wipers are interconnected. Each of the permutation disks **21–25** carries on each side twenty-six contacts. The contacts on the input side of each permutation disk are, as desired, interconnected with contacts on the output side thereof. Accordingly, the input currents are interchanged. The permutation disks **21–25** being freely rotatable on the shaft, are rotated merely by the frictional pressure of the wipers on the wiper disks, unless one or the other of such permutation disks is held against rotation by its associated holding magnet indicated at **47–51**. The disks are removable from the shaft, and it is therefore easily possible to exchange them individually for disks providing for different permutation.

Fig. 3 shows one of the permutation disks, for example, the disk **21**. The holding magnet **47** associated with this disk has an armature **41** which can, responsive to energization of the magnet, engage one of the locking teeth **46** disposed peripherally of the disk **21**. So long as the associated holding magnet is deenergized, the disk is free to rotate with the adjacent wiper disk. The holding magnets **47–51** thus control the number of steps to be executed by their associated permutation disks. The selective operation of these holding magnets may be accomplished in several ways.

There are, first, contacts **52–56** which may be closed by cams carried by the respective permutation disks **21–25**, to cause operation of a succeeding disk by a preceding one. This particular control is schematically indicated in the drawing by a conductor extending from the contact **52** to a special or auxiliary permutation disk **57**. A similar conductor extends to the disk **57** from each of the remaining contacts **53–56**. An interchange of the five conductors can thereby be effected. The auxiliary permutation disk **57** may be a disk of generally known construction, similar to the disks **21–25**, having annularly disposed contacts on each side and coacting wiper disks for scanning these contacts, and may

be disposed on the shaft **20** or on a shaft geared to it and driven thereby. Another suitable and desired permutation element may be substituted for the disk **57**.

The holding magnets **47–51** may also be selectively actuated by the use of five selection rods **61–65** which are operable by keys such as keys **5—7** in similar manner as in a teleprinter. These selection rods are adapted to actuate respectively associated contacts indicated at **66–70** for closing circuits to the permutation disk **57**. By this particular arrangement is obtained a selective alteration of the permutation disks **21–25** dependent on the symbol that may at any time be scanned.

An entirely different control is obtained by the use of a perforated tape such as is schematically indicated at **71**. There is provided a scanning mechanism of known structure, as used, for example, in a teleprinter, comprising five selection rods **201–205** corresponding, so far as their function is concerned, to the selection rods **61–65**. The perforated tape **71** is employed in such scanning mechanism to govern the selective operation of these selection rods. Each of these five selection rods is by this mode of operation governed by one of the five rows of perforations on the tape **71** which is associated therewith. The auxaliary permutation disk **57** is in such case used for interchanging the assignment, that is, the association of these perforation rows with respect to the selection rods.

The auxiliary permutation disk **57** may thus be affected by three distinct and separate contact groups, namely, first, by the contacts **52–56** which are cam-controlled by the permutation disks **21–25**; second, by the contacts controlled by the key-operated selection rods **61–65**; and, third, by contacts controlled by the selection rods **201–205** which are governed by the perforated tape **71**. The corresponding controls may be effected simultaneously or successively or selectively, with some of these occuring simultaneously, depending on the construction of the permutation disk **57** and the number of contacts provided thereon.

The printer mechanism, shown at the bottom of Fig. 2, comprises a shaft **19**. There are provided two stationary contact disks **72** and **73**. The individual contacts of the disk **72** are interconnected with the current conductors or leads to the keys and to the wiper disk **31**, respectively; and the individual contacts of the stationary disk **73** are similarly interconnected with the conductors of the wiper disk **32**. Upon the shaft **19** are disposed two rotatable disks **74** and **75** carrying wipers which, during the rotation of the shaft, scan all the contacts of the associated disks **72** and **73**. Also disposed upon the shaft **19** are two type wheels **76** and **77**. Underneath these type wheels are movably disposed associated recording tapes indicated at **78** and **79** and armatures **80** and **81** respectively associated with the printer magnets **82** and **83**.

The magnet **82** is energized, incident to each revolution of the shaft **19**, at the instant when a contact of the disk **72**, which happens to be electrically associated with a depressed key is scanned by the wiper carried by disk **74**. The individual types or symbols are suitably arranged on the type wheel **76**, and the symbol corresponding to the depressed key will therefore be printed on the tape **78**. The text which is thus being printed upon the tape **78** will be the actual or true text of the message. The analogously constructed and arranged printer mechanism comprising the type wheel **77**, the armature **81** and the magnet **83** will print on the associated tape **79** the coded text, since the current leads or conductors have been interchanged by the five permutation disks **21–25**. An additional permutation of the individual symbols may be obtained in simple manner by exchange of the type wheel **77** for a similar type wheel on which the symbols appear in different sequence.

The drive mechanism shown at the bottom right of Fig. 2 comprises the motor **91** which drives the shaft **19** over the clutch **93**. This clutch is normally disengaged

by the action of a spring 94 and is actuated responsive to energization of a magnet 95 which is energized over a circuit including the contact 17 in the key mechanism shown in Fig. 1 responsive to actuation of one of the selection rods. The clutch magnet 95 is after initial energization, connected in a holding circuit over a contact 96 which is operated by a cam 97 on the shaft 19, so as to always secure one full revolution of the shaft. Shortly before the shaft 19 completes each full revolution the shaft 20 is interlocked with the shaft 19 and rotated by an angular increment corresponding to one or more 1/26; that is, the shaft 20 is at such times rotated by an amount which corresponds to the stepping of the permutation disks by one or more contact steps.

The machine may be used for decoding by exchanging the input and output conductors or, rather, their associated terminals. It is clear of course that, if the stepping of the permutation disks 21—25 is made dependent on the actuation of keys such as the keys 5—7 and therewith on the selection rods 61—65, a corresponding stepping must be employed incident to the decoding. Five contact cams 101–105 are for this purpose disposed on the shaft 19 for controlling associated contacts 106—110. These contacts in turn affect the holding magnets 47—51 over the auxiliary permutation disk 57. The switching impulse occurs in this case prior to the instants when the holding magnets 47—51 should operate, and it is therefore necessary to provide the holding magnets with suitable delay means which may be known and suitable mechanical or electrical means, including holding contacts.

The operation is as follows:

When a key such as 5, 6, 7 . . . etc., is depressed, the bar 16 will be operated to close contact 17. This will energize the magnet 95 which will attract its armature 200 to actuate the clutch 93 so as to couple the shaft 19 with the continuously rotating gear 92 operated by motor 91. Upon start of rotation of the shaft 19, contact 96 will be closed by cam 97 to close a holding circuit for the magnet 95 so that this magnet remains operated (for a full revolution) even if contact 17 should be opened due to release of the keys 5, 6, 7 . . . etc. At the end of the rotation through one revolution, cam 97 will open contact 96 and the shaft 19 will stop. Magnets A, 211 and C are energized for the duration of one revolution of the shaft 19. Magnet C moves the holding or locking bar 15 into the cutouts in the levers 8, 9, 10 . . . etc., so as to lock the keys in operated position. These magnets (A, 211 and C) deenergize at the end of a revolution of shaft 19 thus releasing the locking bar 15 to release the keys. The pawl 212 of magnet 211 steps the perforated tape 71 by one step.

The shaft 19 is geared with the shaft 20 over belts 218 and 220 and a gear 219 so as to rotate shaft 20 (at the end of each revolution of shaft 19) by one or more steps.

The shaft 20 drives the auxiliary permutation disk 57 through the drive 221—222 and the auxiliary permutation disk 57 is therefore likewise advanced by one or more steps incident to the similar advance of (the coder) shaft 20.

The depression of one of the keys 5, 6, 7 . . . etc., thus causes rotation of the shaft 19 (by one revolution). In addition thereto, the key operated contacts such as 12, 13, 14 . . . etc., will be closed. This closes a circuit (assuming one key to have been actuated) which extends over the switch 216 (shown in the "coding" position) to the input side or disk 31 of the permutation disks 21—25. This circuit is scrambled in these permutation disks and extends in each scrambled or "coded" form to a contact at the output side (disk 32) and from there to a contact on the disk 73 in the printer.

The wiper on the scanning disk 75 picks up the potential of this current and conducts it to the printer magnet 83. This causes the printing of the scrambled, that is to say, of the "coded" signal.

The true text is similarly printed on the tape 78 by

the magnet 82 which is operated when the wiper on the disk 74 finds a current carrying contact on the disk 72, such contact extending to a corresponding contact on the coder input disk 31.

Upon completion of such printing of the coded signal, for example, near the end of the revolution of the shaft 19, the shaft 20 will be advanced by one step. The wiper disks 26—29 will take along (frictionally) only those of the permutation disks 21—25 which are not held against rotation by their associated magnets 47—51.

The permutation disks 21—25 are in this manner always variably advanced or held against advance, thus causing an interchange of the circuit connections extending between the input and the output disks 31 and 32.

The holding magnets 47—51 (for controlling the armatures 41—45 and therewith the setting of the permutation disks 21—25) may be controlled in three different ways, which may be applied alone or in combination, depending on the closed or open position of the switches 223—225.

The permutation disks 21—25 form links in the circuit from the input disk 31 to the output disk 32. Some of the contacts 52—56 associated with the permutation disks will be closed by the associated cams 226. In Fig. 1, it is assumed that contacts 52, 54 and 55 are closed while contacts 53 and 56 are open. The leads connected with these contacts extend over the switch 225 (assumed to be closed) to contacts on the input disk 227 of the auxiliary permutation disk 57. In this disk (57) the circuits are in known manner interchanged again and the corresponding (additionally interchanged or coded) signal currents are conducted to the output disk 228 of the disk 57 and from there to the holding magnets 47—51.

For example, if contact 52 is closed, the permutation disk 21 will be held by the operation of magnet 47. In another position, the auxiliary permutation disk 57 will cause energization of another magnet (for example, 48 or 49 . . . etc.) by current from the contact 52.

The selection rods are in known manner set by the actuation of the keys such as 5, 6, 7 and close contacts such as 66—70. From these contacts extend five leads over the switches 217 and 224 to the input disk 227 of the auxiliary permutation disk 57. The corresponding signal circuits are similarly interchanged (coded) in the disk 57 and similarly conducted to the magnets 47—51.

Contacts 206—210 are provided which are actuated by the levers 201—205 governed by the perforated tape 71. These contacts (206—210) are wired to the switch 223 and if this switch is closed, the potentials of the corresponding circuits will reach the input disk 227 of the auxiliary permutation disk 57 which performs additional interchange of the circuits for corresponding control of the magnets 47—51.

Assuming that none of the contacts 52—56, 66—70, 206—210 which may be in a circuit to the holding magnet 51, is closed, the permutation disk 25 will not be held against rotation; but if a single one of these contacts should be operated, the disk 25 will be held by the actuation of its magnet 51.

The three contact groups (52—56/66—70/206—210) are therefore adapted to act individually and also collectively upon the control of the holding magnets 47—51 and therewith effect control of the permutation disks 22—25. Each group of contacts may be selectively switched in by the switches 223, 224, 225, respectively.

The positioning of the armatures 41—45 and therewith the holding of the disks 21—25 is effected during the rotation of the shaft 20, that is, after coding of a symbol. It will be clear therefore that each cam position of the disks 21—25 or each symbol marked by the actuation of the keys 5, 6, 7 . . . etc., or each combination on the tape 71 always affects the coding of the next successive symbol.

The coding of a true-text symbol thus affects the coding of the next successive symbol and it follows, therefore,

that the last true-text symbol must affect the next successive symbol in the decoding operation. The magnets **47—51** therefore cannot be controlled, in the decoding, from the contacts **66—70** which do not in such a case represent true-text signals or symbols, since the coded signals are put into the keys in the decoding operation. The decoded signal appears in the decoding at the type wheel **76**.

Associated with this type wheel **76** are the cam disks **101–105** having cams corresponding to the signals in the 5-letter combination. The contacts **106–110** pick up the 5-letter combination, during the rotation of the shaft **19**, which corresponds to the true-text signal.

A magnet B is for this purpose associated with the printer magnet **82** which actuates five contacts such as contact b_1 at times when the signal is printed by magnet **82**. The respective leads from the five contacts b_1 extend over contacts such as a_1, which are at that time closed, to the switches **217** and **224** and thence to the auxiliary permutation disk **57**, and from there, in previously described manner, to the holding magnets **47—51** which control the setting of the permutation disks **21—25**. Contacts such as r_1 may be provided in the respective circuits for the magnets **47—51** for holding these magnets energized until the stepping of shaft **20** is carried out.

Relay A deenergizes upon completion of the revolution of shaft **19** and opens its contacts a_1 thereby releasing the magnets **47—51**.

The machine, so far as described, is adapted for the coding of texts which are manually keyed by operating the key mechanism. If the machine is to be used for coding in coaction with a teleprinter, the key mechanism may be substituted by a suitable printer operating, for example, with the five-letter code, for directly actuating the contacts such as shown at **12—14**. The advance of the permutation disks **21—25** may then be controlled directly by the selection rods of the teleprinter. The coded text at the receiver may in similar manner be fed to the permutation mechanism.

If the coding machine is to be used for perforating a five-letter tape instead of for printing the coded text, there will be provided five contact disks in place of the type wheel **77** forming cams corresponding to the five-letter code, and these cams coact with suitable control contacts which carry out the perforation of an associated tape by means of associated punch magnets. The arrangement, details of which are shown in Fig. 4, is in such a case mechanically similar to the arrangement of the cams **101—105** and associated contacts **106—110**, except that the latter contacts actuate punch magnets.

Referring to Fig. 4, sets of five cam disks **76′** and **77′** take the place of the type wheels **76**, **77**. These cam disks carry the 5-letter combination in form of cams and associated therewith are five punch magnets **301–305** and **306–310**, respectively. These punch magnets punch the 5-hole combination into the two paper tapes **78′** and **79′**. The magnets **82′** and **83′**, which control the contacts **311** and **312**, correspond to the magnets **82** and **83** in Fig. 2. The energization of these magnets (**82′** and **83′**) picks from the succession of the 5-letter combination of the cam disks **76′**, **77′** certain letters, or rather to say, a certain 5-letter combination which is thus punched in the tapes **78′** and **79′**.

Changes may be made within the scope and spirit of the appended claims.

I claim:

1. A coding machine wherein electrical circuits are assigned to individual symbols comprising a plurality of permutation disks for interchanging said circuits, rotatable wiper means disposed between adjacent permutation disks, a rotatable shaft carrying said wiper means, means for rotating said shaft and therewith said wiper means by predetermined increments of angular rotation to carry along said permutation disks by frictional engagement therewith, holding magnets, and means for selectively energizing said magnets to hold associated permutation disks against frictional rotation by said wiper means.

2. The coding machine as defined in claim 1, together with cam means carried by said permutation disks peripherally thereof, and contact means operable by said cam means for controlling predetermined holding magnets.

3. The coding machine as defined in claim 2, together with auxiliary permutation means for interchanging the circuits controlled by said contact means.

4. A coding machine according to claim 1, comprising selection rods, keys for controlling said selection rods, and contacts governed by said selection rods for governing the circuits of said holding magnets.

5. The coding machine as defined in claim 4, together with permutation means for controlling the association of said contacts with said holding magnets.

6. The coding machine as defined in claim 4, together with a five-letter perforated tape, and scanning means for said tape for governing the actuation of said holding magnets.

7. The coding machine as defined in claim 4, together with a five-letter perforated tape, and scanning means for said tape for governing the actuation of said holding magnets, each perforation row of said tape governing the actuation of a predetermined holding magnet.

8. A coding machine according to claim 1, comprising selection rods, keys for controlling said selection rods, first contacts governed by said selection rods, cam means carried by said permutation disks, second contacts operable by said cam means, a five-letter perforated tape and scanning means operated by said tape, said first and said second contacts and said scanning means governing the actuation of said holding magnets, and auxiliary permutation means for interchanging the conductors associated with said first and said second contacts and with said scanning means.

9. The coding machine as defined in claim 8, wherein the number of perforations in said tape determines the number of steps to be executed by a permutation disk.

10. The coding machine as defined in claim 1, comprising manually operable keys individual to said holding magnets for setting the individual associated magnets to hold respectively associated permutation disks in predetermined angular position.

11. The coding machine as defined in claim 10, wherein the setting of the individual permutation disks by said manually operable keys is carried out during the rotation thereof, any of said disks being rotated until stopped by the actuation of its holding magnet responsive to operation of the manually operable key associated therewith.

12. The coding machine as defined in claim 1, comprising printing means for recording the true text and the coded text, respectively.

13. The coding machine as defined in claim 1, comprising printing means for recording the true text and the coded text, respectively, said printing means comprising rotatable type wheels, a printing magnet for each type wheel, and means for scanning the current input and output paths of said permutation disks, said printing means being energized responsive to discovery of a current-carrying circuit by said scanning means.

14. The coding machine as defined in claim 1, comprising printing means for recording the true text and the coded text, respectively, said printing means comprising a rotatable type wheel for said true text and an exchangeable rotatable type wheel for said coded text.

15. The coding machine according to claim 1, comprising printing means for recording the true text and the coded text, respectively, and switching means for adapting the machine for decoding.

16. A coding machine as defined in claim 1, comprising printing means for recording the true text and the coded text, respectively, said printing means comprising a rotatable type wheel for said true text and an exchange-

able rotatable type wheel for said coded text, keys for determining the text to be coded, and switching means for adapting said machine for decoding, the lines to the keys of said machine being for the decoding operation connected with the lines for the recording of the coded text in the sequence corresponding to the sequence of the types on the type wheel for recording the true text.

17. The coding machine as defined in claim 1, comprising means for perforating on a tape the code combination corresponding to the coded text.

18. The coding machine as defined in claim 17, wherein said last-named means comprises punching magnets, and five cam wheels for respectively actuating said punching magnets.

19. A coding machine according to claim 1, comprising contacts for determining the text to be coded, and means controlled by teleprinter signals for directly actuating said contacts.

References Cited in the file of this patent

UNITED STATES PATENTS

1,502,376	Damm	July 22, 1924
1,683,072	Hebern	Sept. 4, 1928
2,028,772	Friedman et al.	Jan. 28, 1936
2,139,676	Friedman	Dec. 13, 1938
2,402,182	Rosen	June 18, 1946
2,527,661	Stack	Oct. 31, 1950
2,547,515	Zenner	Apr. 3, 1951