B. M. DES JARDINS.

CRYPTOGRAPH.

APPLICATION FILED APR. 23, 1901. RENEWED AUG. 17, 1909.

1,138,851. **Patented May 11, 1915.**

3 SHEETS—SHEET 1.

Fig. 1.

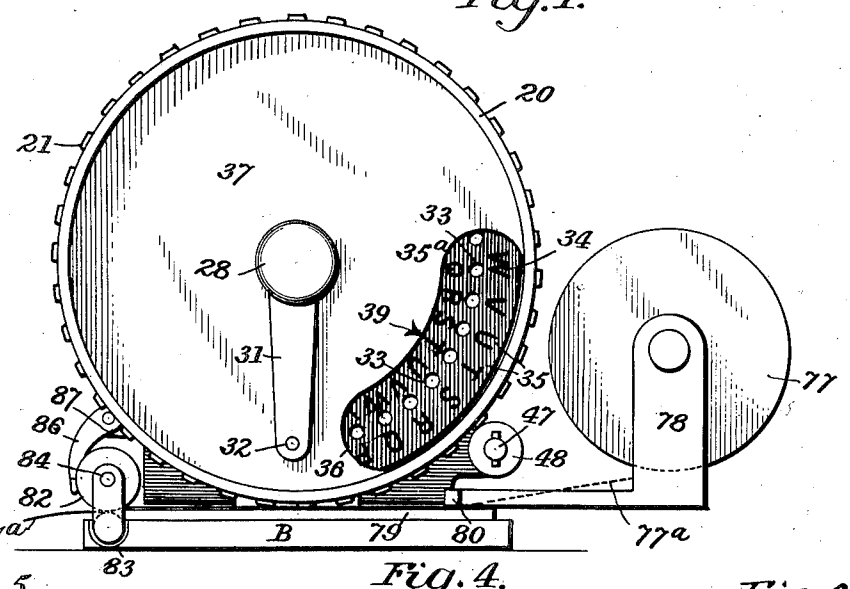


Fig. 5.

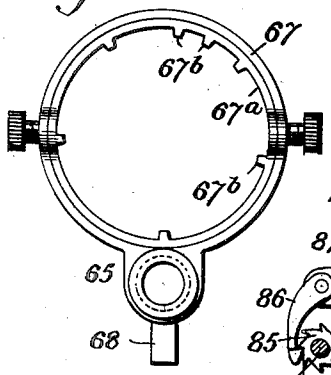


Fig. 4.

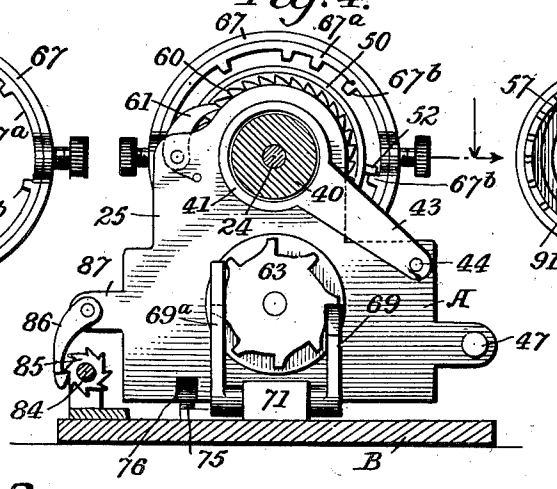


Fig. 6.

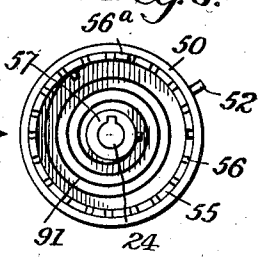


Fig. 8.

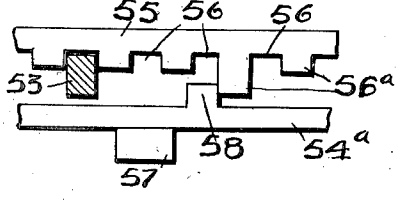
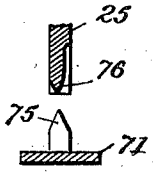


Fig. 7.



Witnesses

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3 SHEETS—SHEET 2.

Fig. 2.

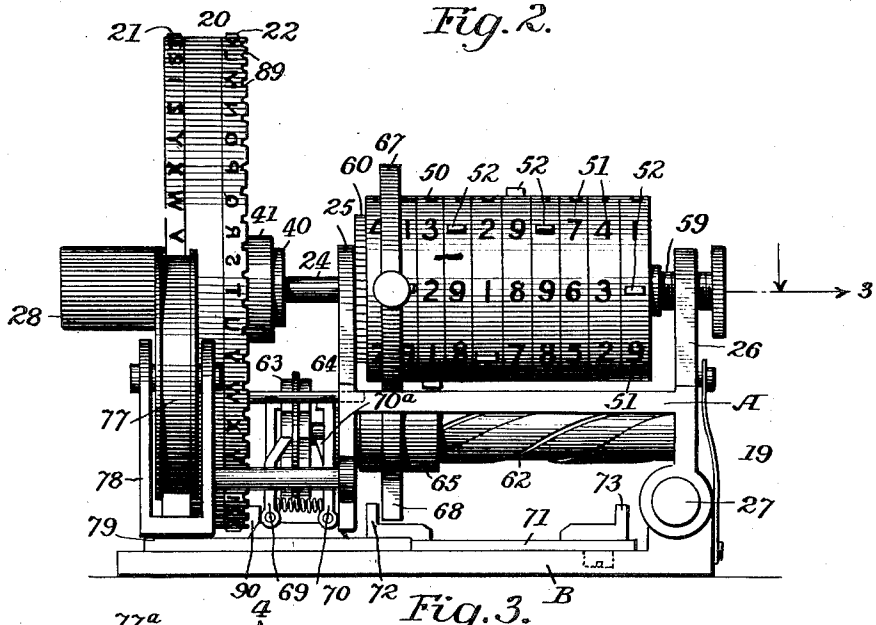
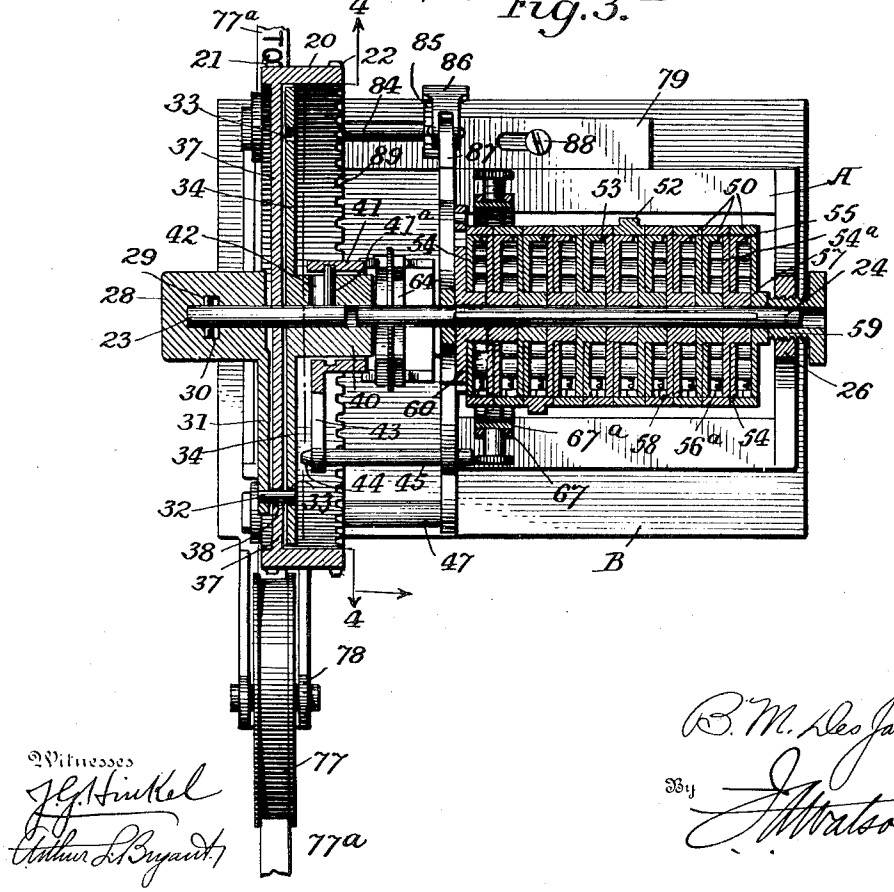


Fig. 3.



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3 SHEETS—SHEET 3.

Fig. 12.

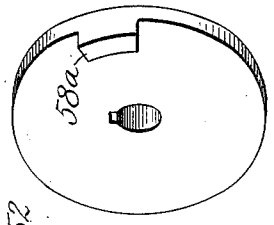


Fig. 11.

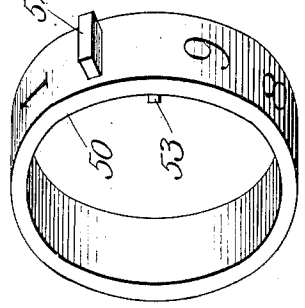


Fig. 10.

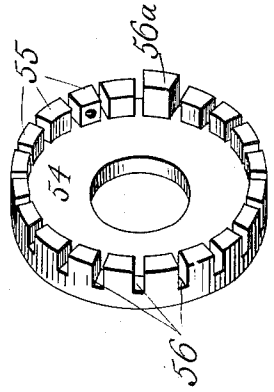
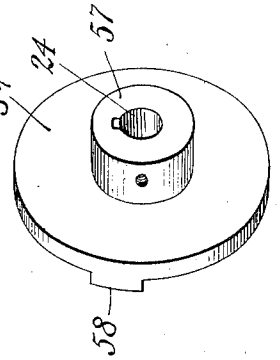


Fig. 9.



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UNITED STATES PATENT OFFICE.

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CRYPTOGRAPH.

1,138,851. Specification of Letters Patent. Patented May 11, 1915.

Application filed April 23, 1901, Serial No. 57,069. Renewed August 17, 1909. Serial No. 513,347.

To all whom it may concern:

Be it known that I, BENJAMIN M. DES JARDINS, a citizen of the United States, residing at West Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Cryptographs, of which the following is a specification.

This invention relates to improvements in cryptographs and includes a typewriter or printing mechanism having type or printing characters arranged around the periphery of a wheel, an index corresponding to the type or characters on said wheel, and an adjustable mechanism for changing the relation of said index to the type on the printing wheel so that innumerable combinations of characters may be printed.

In order to make the changes innumerable and to avoid a possible recurring rotation during the writing of a single message, a series of settable mechanisms are employed producing a combination of many changes which is easily set for any given message.

The invention also includes means for translating a message printed by similar mechanism, consisting of a second set of printing characters and a corresponding index the order or arrangement of the members of which is the reverse of those used in printing a message, said translating index being automatically adjusted during the operation of the machine in a manner similar to that in which the index is shifted when preparing a message.

In the accompanying drawings; Figure 1 is a front elevation of a cryptograph constructed in accordance with the present invention; Fig. 2 is a side elevation of the same; Fig. 3 is a horizontal section taken on the line 3 of Fig. 2; Fig. 4 is a vertical sectional view taken on the line 4 of Fig. 3; Fig. 5 is an elevation of one set of combination disks; Fig. 6 is a detail view of the escapement stop ring; Fig. 7 is a detail view of the stops by which the direction of rotation of the feed shaft for the escapement stop ring is varied; Fig. 8 is a diagrammatic view, illustrating the action of the combination disks; Figs. 9 to 12 inclusive illustrate in detail and on an enlarged scale the several members of one of the combination disks.

Referring to the drawings, 20 designates a type-wheel which consists of a suitable disk or support 37 and a relatively wide or expanded peripheral ring, on the exterior surface of which are arranged two series of type or printing characters, 21, 22. The characters in said rows 21, 22 are arranged in reverse order; those in the row 21 being employed in preparing messages while those in the other row 22 are for use in translating messages which have been prepared by such a machine as is herein described. Said type-wheel 20, is mounted on a short horizontal shaft 23. This shaft is arranged in alinement with and forms a continuation of a shaft 24 which is mounted in standards 25, 26 arising from a frame A. The type acting in conjunction with the parts which coöperate with it to produce the impression is referred to as a recording mechanism. This frame is pivotally mounted at 27 and so connected with a spring 19 that the type-wheel 20 is normally held in a slightly elevated position above a record strip or tape 77^a. The said strip or tape 77^a is carried by a reel 77 which is mounted on a suitable standard 78. Said standard is carried by a slide 79 adjustably secured to the base of the machine so that said reel may be adjusted laterally of the type wheel to bring the tape or record strip 77^a beneath either of rows 21, 22 of type on the printing wheel. The slide 79 is held in either of its adjusted positions by a screw 88. The free end of the said tape or record strip extends through or beneath a clip or guide 80 and between rollers 82, 83. The feed roller 82 is mounted on a shaft 84 on which is also secured a ratchet 85. A pawl 86 connected with the frame A engages said ratchet so that each time the said frame is rocked about its pivotal support 27 the ratchet will be actuated and the tape 77^a fed forward one step.

The inner end of the shaft 23 extends loosely into a suitable bearing in the hub 40 of an index disk or plate 34 situated within the chamber or recess formed in rear of the supporting disk 37 of the printing wheel by the peripheral flange of said wheel 20. The hub 40 of the index plate is rigidly secured to the shaft 24 and the shaft 23 is connected to said hub so as to be capable of a limited longitudinal movement relative thereto. As shown the shaft 23 is provided with a radially projecting pin or stud 41^a which extends through an opening or slot 42 in said hub; and said slot in the hub is

longer than the diameter of the pin so that, as stated above, the shaft 23 may move slightly longitudinally. To the outer end of the shaft 23 is connected a knurled finger piece 28 which is provided with an arm having near its free end a pin 32 which extends through an aperture 38 formed in the radial support 37 of the type-wheel and is adapted to enter that one of a series of perforations 33 in the index disk 34 which is in alinement with said opening 38 in the type-wheel support 37. The finger piece 28 and shaft 23 are connected by means of a pin 29 extending through said shaft and into a chamber or passage 30 in the finger piece; said connection being such that while the shaft and finger piece are connected the latter and its arm 31 may be freely revolved about the shaft. The type wheel is provided with the alining notches 89 coacting with the taper projection 90 to accurately aline each type.

On the outer face of the index plate or disk 34 are arranged two series of index characters 35, 35ª. The characters in the two rows 35, 35ª are the same as those on the type-wheel, the arrangement or order of characters in the index row 35 corresponding to the arrangement of type in the row 21 on the type wheel, while the characters in the index 35ª are arranged in reverse order and correspond to the type in row 22 on the printing wheel being intended for use when translating messages. Portions of both of said series of index characters 35, 35ª are visible through an opening 36 formed in the support 37 of the type-wheel; and a pointer or indicator 39 is provided for use in connection with said indexes. By reference to Fig. 1 it will be seen that there is an aperture 33 in alinement with each letter or character of both indexes 35, 35ª.

The index disk 34 is normally held stationary by means of a pin 44 engaging in one of the apertures 33 in said disk. This pin 44 projects forwardly from an arm 43 on a sleeve 41 which loosely surrounds the hub 40 of the index disk. From the opposite side or face of said arm projects a rod 45 that extends through an aperture in the frame A and prevents rotation of the sleeve 41 and arm 43 about or with the hub 40. The pin 41ª which connects the shaft 23 and hub 40 of the index disk extends slightly beyond said hub and into a groove or channel formed in the inner surface of said sleeve 41. By this connection the sleeve 41, which, as aforesaid, is by means of the rod 45 prevented from rotating, offers no obstruction to the free rotation of the index disk; and by reason of its engagement with the shaft 23, said sleeve and arm are adjusted with said shaft to cause the pin 44 to engage or release the index disk.

Ink is applied to the type on the printing wheel by means of an inking pad 48 that is mounted on a stud 47 on the main frame.

In operating the machine, assuming that it is desired to prepare a message, the operator grasps the finger piece 28 and moves it longitudinally slightly, sufficiently far to withdraw the pin 32 from engagement with the index disk 34 and to bring the pin 44 into engagement therewith. By means of said finger piece the type-wheel is then turned about the shaft 23 until the pointer 39 is opposite the letter or character on the index 35 which it is desired to represent in the message. By a slight inward push of the finger piece the pin 44 will be withdrawn from engagement with the index disk and the pin 32 caused to reëngage the same. Then, by a further rotation of the finger piece 28, the connected index plate and type-wheel are rotated as far as possible. This brings into printing position the type in row 21 which is to correspond with the letter or character indicated by the pointer 39 on the index 35. The finger-piece 28 is then depressed and the character representing the desired and selected letter or character will be brought against the record tape or strip 77ª. When the finger-piece 28 is released the type-wheel and connected parts will be raised and restored to their normal positions by the spring 19.

The extent of movement permitted the shaft 23, the index 34, and the printing wheel 20, and the selection of the character to represent in the message prepared on the tape 77ª the letter or character indicated on the index 35 by the pointer 39 is controlled by an adjustable figured index which will now be described.

On the shaft 24 are mounted a series of disks 54ª each having a hub 57 projecting laterally from one face, which hub is keyed to the shaft, and on its face opposite said hub a projection or stop 58. Loosely mounted on each of said hubs 57 is a disk 54 provided with a peripheral flange 55 in which are formed a series of notches or teeth 56, said flange also carrying a stop or projection 56ª.

The disks 54 and 54ª are of substantially the same diameter and about each laterally projecting hub portion 57 and the disk 54 supported thereby is arranged a band or ring 50 which is provided with an external stop or lug 52 and an interior lug or pin 53. The band or ring 50 is of such width as to surround the projecting portion of the hub 57 and the disk 54 mounted thereon as well as the body and lug 58 of the next adjacent disk 54ª. That is, each ring 50 covers the hub 57 of one disk 54ª and the body of the next adjacent of said disks 54ª. The interiorly projecting stop or lug 53 of each ring 50 is therefore adapted to engage either of the notches or teeth 56 in the peripheral

flange of the disk 54 arranged within said ring 50; and the projection or stop 58 within said ring 50 is adapted to engage both the pin 53 on said ring 50 and the stop 56ª within said ring.

To provide for the combination ring at the right of the apparatus a stop corresponding to that provided for every other ring of the series by the projection 58 on the disks 54ª a disk (shown in detail in Fig. 12) similar to disks 54ª and provided with a stop or lug 58ª is suitably secured to the shaft 24.

Each ring or band 50 is provided on its periphery with a series of index numerals, said numerals representing divisions the total number of which is one-half the number of notches 56 formed in the flange of the disk 54 arranged within the ring or band 50; and the projection 52 before referred to occupies the zero position in such series of index numerals. In the embodiment of the invention herein illustrated each disk 54 is provided with twenty notches 56 and each row of type 21, 22 on the printing wheel, and each index 35, 35ª has forty numbers or characters.

To the shaft 24, between the standard 25 and the first of the series of hub disks 54ª, is secured a ratchet 60 with which engages a spring pressed pawl 61 mounted on said standard 25. The series of hub disks and parts carried thereby are held in proper position and against movement longitudinally of the shaft 24 by means of an adjustable thrust piece 59. As shown, this consists of a threaded sleeve mounted in the standard 26 of frame A and forming a bearing for the adjacent end of shaft 24, the inner end of said sleeve bearing against the hub of the end disk 54ª to hold said disks and rings in position when in operation and to loosen them when changing the said stud or stop 53 from one of the said notches 56 to another one of the series in order to change the distance between said stops 53 and 56ª.

Each of the disks 54ª is provided with a lug or stop 58 which projects into the plane of the aforesaid interior lug or stop 53 of the ring 50 within which said disk is arranged and also into position to intersect a stop 56ª on the flanged disk 54 arranged within the same ring 50. As will be seen by what follows, a sensitively rotatable loose connection is provided between the type 21 on the wheel 20 and index disk 34 and the determined printing point, which when at rest is held in an initial position, but easily shifted by the application of a slight pressure. A coiled spring 91 is arranged within each of the flanged disks 54, one end of said spring being connected to said disk and the other end to the hub 57 on which the disk is mounted maintaining a spring contact between said stop 56ª, which has an adjustable relation with the projection 52, and the stop 58, which is fixed with relation to the shaft 24.

In suitable bearings formed in the ends of the main frame A below the adjustable index or combination disks above described is mounted a spirally threaded shaft 62. With this shaft engages a nut 65 carried by the escapement stop ring 67. Said escapement stop ring supports an interior ring 67ª which extends around the adjustable combination index and is provided with a series of inwardly projecting lugs 67ᵇ that project into the path of the lug or stop 52 of the ring 50 with which said escapement ring is in alinement. Said escapement stop ring and nut 65 is also provided with a depending finger 68 adapted to engage alternately, at the extremes of its movement longitudinally of the adjusting rod 62, stops 72, 73, rising from a slide 71 on the base plate B of the machine. The ring 67ª is axially adjustably within the ring 67, being held at any desired position within the latter by means of suitable set screws.

On the end of the spirally-grooved shaft 62, between the standard 25 and the typewheel 20, are mounted two ratchets 63, 64, the former acting to rotate said shaft so as to feed the escapement stop ring from a position adjacent the standard 26 toward the standard 25 and the other, 64, serving to feed said escapement stop ring in the opposite direction. These ratchets are actuated, respectively, by pawls 69, 69ª and 70, 70ª, which pawls are mounted on the aforesaid slide 71. The slide 71 is also provided with a projection 75 adapted to coact with a beveled surface 76 on the frame A to insure a complete and proper adjustment of said slide as the escapement stop ring 67 approaches the limit of its movement in either direction. After the escapement 67, through its projection 68 contacts with said slide 71, either in the forward or rearward movement of said escapement, the said pawls 69, 69ª and 70 70ª begin to slide off their coacting ratchets 63 or 64 and there is danger of their slipping off entirely before the slide 71 has been moved its full distance. In order to assure a full adjustment of said slide it is provided with the said tapered projection 75 which coacts as stated, with said beveled surface 76 in such a manner that when the type wheel is down, the bevel 76 will have wedged projection 75 either at its full forward or rearward position.

The operation of the machine, and particularly of that portion thereof which controls the selection of the character or letter which is to appear in the message in place of the letter or character of the index 35 which is in alinement with the pointer 39 at any printing operation may be briefly described as follows: As the coupled shafts

23, 24, are rotated, after the type-wheel has, as hereinbefore described, been adjusted to bring the pointer 39 into alinement with the desired letter or character on the index 35, and the finger piece 28 pushed inward to connect the type-wheel and index-disk 34, the series of disks 54, 54[a] and rings 50 will be rotated with the type-wheel. When the lug 52 on that ring 50 which is then in alinement with the escapement stop ring 67 comes into contact with one of the inwardly extending lugs 67[b], further rotation of said ring 50 will be prevented; but the other parts may still be turned until the stop 58 on the disk 54[a] within said ring 50 comes into contact with the stop 53 on said ring. This engagement prevents further rotation of the type-wheel and the type or character then in printing position is the one selected to represent the letter indicated by the pointer 39; and on the frame A being depressed, as before described, will be imprinted on the tape or record strip 77[a].

When the finger piece 28 is released, and the frame A lifted by action of the spring 19, the ratchet 63 will be turned one step by reason of its engagement with the pawl 69[a]. This turns the spirally grooved shaft sufficient to feed the nut 65 and the escapement stop ring forward a distance equal to the width of one of the rings 50. As soon as the lug 52 of the previously engaged ring 50 is released, by such adjustment of the escapement stop ring, said ring and the flanged disk 54 within it are rotated in a reverse direction by the spring 91 until the stop 56[a] on said disk 54 comes into contact with the stop 58 or is returned to the starting position which they always maintain when not in action. By a repetition of the aforesaid movements and adjustments the escapement stop disk will be fed transversely of and brought successively in alinement with the rings 50. When the escapement stop ring 67 is released after having been in engagement with the lug 52 of the last of the series of rings 50 its projecting finger 68 engages the lug 72 and moves the slide 71 to the left. This moves the pawls 69, 69[a] out of the plane of the ratchet 63 and brings the pawls 70, 70[a] into position to actuate the ratchet 64. At the next operation of the machine the motion of the spirally threaded shaft 62 will be reversed and by a repetition of said movement the escapement stop will be fed step by step across the series of rings 50 in a direction opposite that in which it was formerly moved until its lug 68 engages the lug 73 and shifts the slide 71 to withdraw pawls 70, 70[a], from operative position and adjust the pawls 69, 69[a] into position to actuate ratchet 63.

As the lugs 67[b] are arranged at irregular distances apart and the ring 67[a] is adjustable within the ring 67 it will be seen that the distance through which a ring 50 can move before its lug 52 will engage one of said stops 67[b] can be readily varied. Further variation in the extent of movement permitted the index and type-wheel when connected can be effected by loosening the thrust piece 59 and adjusting one or more of the rings 50 into different axial relation to the supporting disks 54 thereof that is by releasing the stop 53 of said ring from the notch 56 of disk 54 with which it has been engaged and engaging said stop with another of the said notches in the flange of disk 54. Thus it will be seen that innumerable combinations can be provided.

The shaft 24 is held from retrograde movement by the ratchet 60 and pawl 61 so that the relation of the stops 58, 53 is constantly raised as the machine is used, and therefore the extent of movement permitted any disk 54 will be different at each actuation thereof. This causes such a variation in the selection of characters on the printing wheel to represent a given letter on the index that any particular letter may be represented in the printed message by several different characters. Therefore it will be impossible to decipher or translate a code or cipher message prepared by such a machine as is herein described except by means of a similar machine having its parts arranged in the same manner.

In translating a message the parts are so adjusted that the record strip or tape 77[a] is below the series of type 22 on the printing wheel and the index 35[a] is employed instead of that at 35. The operation of the machine in other particulars will be the same in both cases.

It will be seen that by means of two machines having the adjustable combination index parts arranged in exactly the same manner a message written on one can be readily translated by the other, but it will be impossible to translate such a message by any other machine or means.

Having described the invention, what I claim is as follows:

1. In a cryptograph, printing type, a platen therefor relatively to which the type are movable, means for normally indicating when a selected type is in printing position, and a series of mechanisms to vary the extent of movement of successively selected type from printing position.

2. In a cryptograph, the combination of a series of type, a platen, means for moving all the type relative to the platen, an index, and a series of mechanisms each adapted to vary the distance separating the type in printing position from that corresponding to any selected character.

3. In a cryptograph, the combination of a platen, a series of type movable bodily relative to the platen, an index, a series of

mechanisms each adapted to vary the extent of movement by which the type in printing position is separated from the type corresponding to any selected character, and means for rendering said mechanisms successively operative.

4. In a cryptograph, the combination of a platen, a series of type movable bodily relative to the platen, to bring any one thereof into printing position, an index, a series of mechanisms each adapted to vary the extent of movement by which the type in printing position is separated from the one corresponding to any selected character and comprising independently adjustable members, and means for rendering said mechanisms successively operative.

5. In a cryptograph, the combination of a type wheel, an index, a series of disks rigid with the index, a second series of disks rotatable relative to the disks rigid with the index, springs acting to hold each of the second series of disks in a predetermined relation to the corresponding member of the first said series, and means adapted to successively limit the rotation of the disks of the second series.

6. In a cryptograph, the combination of a platen, a series of type movable bodily relative to the platen to bring any one thereof into printing position, an index, a series of variably rotatable disks movable with the series of type, and means to arrest rotation of said disks successively to vary the extent of movement separating the type in printing position from that corresponding to any selected character.

7. In a cryptograph, the combination of a platen, a series of type movable bodily relative to the platen, an index, a series of disks rotatable variable distances to control the extent of movement separating the type in printing position from that corresponding to any selected character, and a plurality of means each adapted to coöperate with said disks to vary such movement at different operations of the mechanism.

8. In a cryptograph, printing type, a platen therefor relative to which the type are movable, means for normally indicating when a selected type is in printing position, and means to vary the extent of movement of successively selected type from printing position comprising a plurality of relatively adjustable members.

9. In a cryptograph, printing type, a platen therefor relative to which the type are movable, means for normally indicating when a selected type is in printing position, and means to vary the extent of movement of successively selected type from printing position including manually adjustable members and means for automatically varying the movement permitted said adjustable members at each operation.

10. In a cryptograph, a type wheel, means for normally indicating when a selected type is in printing position, and means to vary the extent of movement of successively selected type from printing position, comprising a member movable with the type wheel and a relatively stationary member, the relative positions of said members being automatically varied at each operation of the machine and one of said members comprising a plurality of adjustable parts, for the purpose described.

11. In a cryptograph, the combination of a platen, a series of type movable bodily relative to the platen to bring any one thereof into printing position, an index, a stop device, and means movable with the body of type and adapted by engagement with said stop device to determine which type shall represent a selected character at each operation of the machine, the relative positions of said stop and means being varied at each said operation.

12. In a cryptograph, the combination of a platen, a series of type movable bodily relative to the platen, to bring any one thereof into printing position, an index, a plurality of mechanisms each adapted to vary the distance separating the type in printing position from that corresponding to any selected character, and a single stop adjustable relative to said mechanisms, and adapted to limit the movement of the operative one thereof.

13. In a cryptograph, the combination of a platen, a series of type movable bodily relative to the platen, to bring any one thereof into printing position, an index, a plurality of mechanisms each adapted to vary the distance separating the type in printing position from that corresponding to any selected character, an adjustable stop for limiting movement of said mechanism, and means for moving said stop into operative relation to said mechanisms successively.

14. In a cryptograph, the combination of a platen, a series of type movable bodily relative to the platen, to bring any one thereof into printing position, an index, a plurality of mechanisms each adapted to vary the distance separating the type in printing position from that corresponding to any selected character, an adjustable stop for limiting movement of said mechanisms, means for intermittently moving said stop to bring it into operative relation to said mechanisms successively, and means for reversing the direction of movement of the stop when it has completed a traverse of the series of mechanisms.

15. In a cryptograph, the combination of a platen, a series of type movable bodily relative to the platen, to bring any one thereof into printing position, an index, a

plurality of mechanisms each adapted to vary the distance separating the type in printing position from that corresponding to any selected character, a plurality of stops each adapted to limit movement of any one of said mechanisms, and means for causing the operative stop to coöperate with said mechanisms successively.

16. In a cryptograph, the combination of a type wheel, an index, a series of disks rigidly connected with the type wheel, a second series of disks rotatable relative to the type wheel, springs acting to hold each of said second series of disks in a predetermined relation with the corresponding member of the first of said series, and means for limiting the rotation of said second series of disks including a stop adjustable axially of said disks at each operation of the machine.

17. In a cryptograph, the combination of a type wheel, an index, a series of disks rigid with the type wheel and rotatable about the axis thereof, a second series of disks rotatable about the same axis, springs for normally holding each of said second disks in a predetermined relation to the corresponding member of the first said series, and a variable stop mechanism comprising a lug exterior of each of said second series of disks and an abutment movable axially of said disks into the paths of said lugs successively.

18. In a cryptograph, the combination of a type wheel, an index, a series of disks rigid with the type wheel and rotatable about the axis thereof, a second series of disks rotatable about the same axis, springs for normally holding each of said second disks in a predetermined relation to the corresponding member of the first said series, a variable stop mechanism comprising a lug exterior of each of said second series of disks, and an annular support surrounding one of said disks and having a plurality of abutments each adapted to limit turning movement of said exterior lug, and means for moving said abutment carrier axially of the series of disks.

19. In a cryptograph, a recording mechanism comprising type, a platen, an index for normally indicating the type in printing position, adjustable means to vary the extent of movement of successively selected type from printing position, and a second index for said adjustable means.

20. In a cryptograph, a recording mechanism comprising type, a platen, an index for normally indicating the type in printing position, adjustable means to vary the extent of movement of successively selected type from printing position, and a numeral index for determining various adjustments of said means.

21. In a cryptograph, the combination of a platen, a series of type movable bodily relative to the platen, an index for said type, a series of mechanisms each adapted to vary the distance separating the type in printing position from that corresponding to any selected character at each operation of the machine, each of said mechanisms comprising two relatively adjustable parts, and indices for said mechanisms.

22. In a cryptograph, a recording mechanism comprising printing type, a platen, an index for normally indicating the type in printing position, a series of devices for varying the extent of movement of successively selected type from printing position, and means whereby said devices may be adjusted for specific variations.

23. In a cryptograph, a recording mechanism comprising type, a platen, an index, a series of devices for varying the extent of movement of successively selected type from printing position, and means for independently adjusting the members of each mechanism comprising an index, a lug, on a movable member, and teeth adapted to engage said lug and hold the same in any adjusted position.

24. In a cryptograph, a recording mechanism comprising type, a platen, type movable bodily relative to the platen, an index therefor, a series of disks rotatable with the body of type, a second series of toothed disks rotatable independently of the first said series, means acting to hold each member of the second series of disks in a predetermined relation to the corresponding member of the first series, a lug exterior of each of said toothed disks and provided with means for engaging the teeth of said disk, and a stop adjustable axially of the second series of disks into the paths of said exterior lugs successively.

25. In a cryptograph, the combination of a platen, a series of type movable bodily relative to the platen, an index, a series of successively operative mechanisms each adapted to vary the extent of movement between the type in printing position and the manner corresponding to any selected character at each operation of the machine, and means whereby a different series of changes between the index and type will be produced during a second operation of any of said mechanisms.

26. In a cryptograph, the combination of a type wheel, an index, a series of mechanisms each adapted to control the distance separating a type corresponding to any selected character from the type in printing position to an extent equal to the maximum distance between any two type on the wheel, and means for rendering a different one of said mechanisms operative at each successive operation of the machine.

27. In a cryptograph, the combination of

a platen, a series of type movable bodily relatively to the platen, an index, a series of devices each adapted to vary the distance separating a type corresponding to any selected character from the type in printing position, including a series of irregularly located stops, and means for adjusting said stops relative to the other elements of said devices.

28. In a cryptograph, a type wheel, having two series of characters arranged in reverse order circumferentially, two indices corresponding to said series of characters for normally indicating when a selected type is in printing position, and means to vary the extent of movement of successively selected type from printing position.

In testimony whereof I affix my signature, in presence of two witnesses.

BENJAMIN M. DES JARDINS.

Witnesses:
TALLMADGE SWIFT,
JAS. DANGERFIELD.