E. H. HEBERN & F. HOFFMAN.

CRYPTOGRAPHIC ATTACHMENT FOR TYPE WRITING MACHINES.

APPLICATION FILED JUNE 3, 1912.

1,086,823.

Patented Feb. 10, 1914.

2 SHEETS—SHEET 1.

Fig. 1.

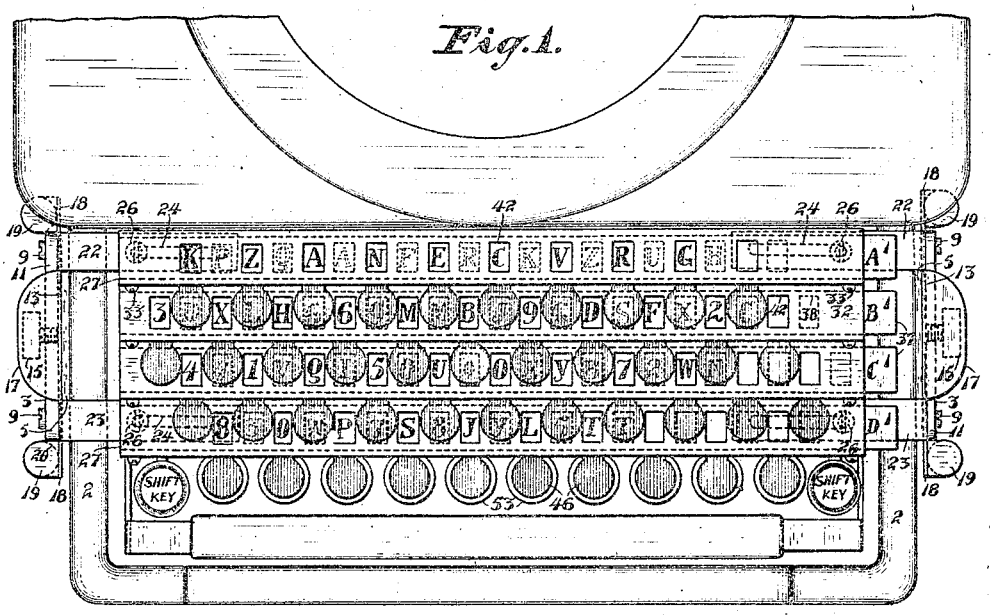
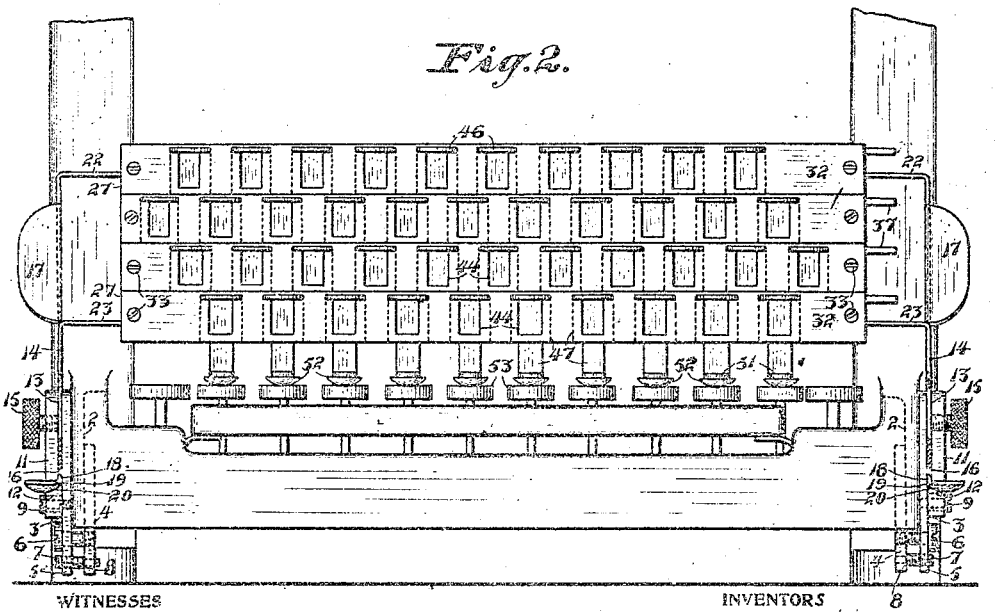


Fig. 2.



WITNESSES

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2 SHEETS—SHEET 2.

Fig. 3.

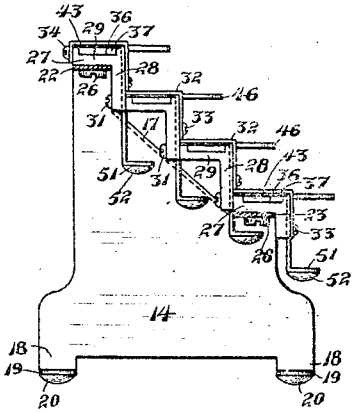


Fig. 4.

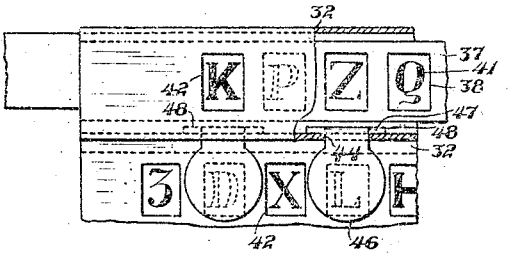
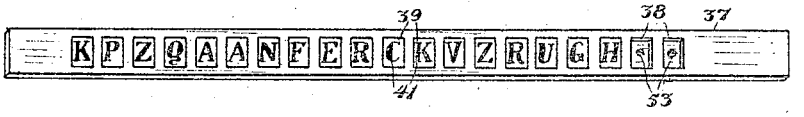


Fig. 5.



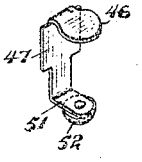


Fig. 6.

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UNITED STATES PATENT OFFICE.

EDWARD H. HEBERN AND FRED HOFFMAN, OF OAKLAND, CALIFORNIA, ASSIGNORS, BY MESNE ASSIGNMENTS, TO H & H PATENT-DEVELOPING COMPANY, OF OAKLAND, CALIFORNIA, A CORPORATION OF CALIFORNIA.

CRYPTOGRAPHIC ATTACHMENT FOR TYPE-WRITING MACHINES.

1,086,823. Specification of Letters Patent. Patented Feb. 10, 1914.

Application filed June 3, 1912. Serial No. 701,185.

To all whom it may concern:

Be it known that we, EDWARD H. HEBERN and FRED HOFFMAN, citizens of the United States, residing at Oakland, in the county of Alameda and State of California, have invented new and useful Improvements in Cryptographic Attachments for Type-Writing Machines, of which the following is a specification.

The object of the present invention is to provide an attachment for typewriting machines enabling it to be used for simultaneously converting a message into cipher and typewriting the message so converted, and which can also be used to simultaneously typewrite and decipher the message.

A further object is to provide such a device in which the mechanism for changing from the converting mechanism to the deciphering mechanism can be effected quickly and easily.

A further object is to provide a device of this character which can be readily adjusted to various sizes and forms of typewriting machines.

In the accompanying drawing, Figure 1 is a broken plan view of a typewriting machine equipped with our attachment; Fig. 2 is a front view thereof; Fig. 3 is a vertical transverse section of the attachment detached; Fig. 4 is an enlarged broken plan view of the attachment; Fig. 5 is a perspective view of one of the removable code strips; Fig. 6 is a similar view of one of the slide pieces detached.

Referring to the drawing, 1 indicates a typewriting machine, to each end bar 2 of the frame of which is clamped a base or support 3. Said support comprises two vertical parallel plates, an inner plate 4 and an outer plate 5, secured together by screws 6 passed loosely through the outer plate 5 immediately below the lower edge of the side bar 2, and screwed into the inner plate 4 and the lower marginal portions of said plates are maintained at any desired distance apart by screws 7 screwed through the outer plate and having shoulders 8 which engage shoulders in the inner plate. By screwing said screws 7 in or out, the distance at which the plates are spaced apart at their lower edges can be varied according to the thickness of the end bar 2 of the machine, and then, by screwing in the screws 6, the upper parts of the inner and outer plates can be drawn tightly together to clamp them on opposite sides of said end bar 2.

Against the outer surfaces of each outer plate is secured, by screws 9, a bearing plate 11. These screws 9 pass through vertical slots 12 in said bearing plate, so that, by adjusting vertically said bearing plate 11, and then tightening up said screws, said bearing plates can be adjusted at any desired height. The bearing plate is cut away at its inner side, to form with the outer plate 5 a recess or slot 13, to receive the lower edge of the corresponding end piece 14 of the frame of our improved attachment, said edge resting upon a shoulder 16 of said bearing plate formed by so cutting it away and, as said shoulder can be adjusted to any desired height, the end pieces 14 and the attachment may also be so adjusted. Said end pieces can be clamped in said recesses by means of clamping screws 15 screwed through the bearing plate and which bear against the end pieces. Said end pieces are formed with outwardly extending lips 17 to enable the attachment to be conveniently raised or lowered into position, and with legs 18 having outwardly bent feet 19 provided with suitable rubber shoes 20 for conveniently supporting the attachment when detached from the typewriting machine.

The upper edge of each end piece and the corresponding lip 17 slope upwardly and rearwardly in a direction approximately parallel with that of the bank of keys of the typewriting machine, and from each end plate there extend inwardly and horizontally upper and lower fingers 22, 23, which are formed with longitudinal slots 24, through which pass screws 26, which are screwed upwardly into the ends of the upper and lower sections 27 of a keyboard. There are as many such sections as there are rows of keys in the typewriting machine to which the device is to be attached, there being here shown four rows, which is the usual number. Each section is angular in form and consists of a vertical member 28 and a horizontal member 29. The vertical member of each section except the lowermost is secured to the rear edge of the horizontal member of the section below by means of screws 31, screwed through said vertical member at its lower margin and also through the rear edge

of the horizontal member below it. Said sections are covered each by a cover plate 32 which extends over, and fits closely against, the vertical and horizontal members of said section, and is secured to said vertical members by screws 33 and to said rear edge by screws 34, the upper margin of the uppermost cover plate being bent over the rear edge of the uppermost horizontal member.

Each horizontal member is channel-shaped, so as to form with the adjacent portion of the cover plate a guideway 36, in which guideways can slide code strips 37 which are preferably composed of fiber. Each strip is formed with a longitudinal series of recesses or depressions 38, and closely fitting in said recesses are blocks 39, preferably of different color from the fiber, and having marked thereon characters 41 such as letters or numbers. These characters are adapted to be seen through suitably shaped holes 42 formed in the horizontal members of the cover plate 32. Clamped between the horizontal members of the cover plate and of the corresponding section 27 is a thin strip 43 of celluloid or other transparent material extending the full length of the section, and serving to protect said guideway 36 from the entrance of dust. There are in each strip as many characters as there are holes 42 in the corresponding horizontal member of the cover plate, said characters being arranged in two series, alternate characters being used for sending and for receiving respectively, as will hereinafter be explained. Said cover plate is cut away in each vertical portion thereof to form a series of apertures 44, respectively immediately in front of the holes 42 of the series in the horizontal member of the cover plate immediately above said apertures, and through said apertures 44 extend forwardly the necks of finger pieces 46, which by said necks are integrally connected to slide pieces 47, which can slide vertically in vertical recesses 48 formed in said vertical members 28 of the sections 27, said recesses being immediately behind the respective finger pieces 46, and immediately in front of the respective holes 42. Said recesses 48 and slide pieces 47 are of greater width than said apertures 44, so that the slide pieces are retained in said recesses by the vertical edges next to said apertures of the vertical members 28 of the cover plate. Said slide pieces 47 at their lower ends extend in a forward and horizontal direction to form feet 51 which have secured thereon shoes 52. The parts are so arranged that, when the attachment is in position, these feet rest upon the several keys 53 of the typewriting machine. Each code strip 37 is of length greater than the length of the corresponding guideway 36 by one-half the distance at which the holes 42 are spaced, that is, the exact distance at which the characters 41 are spaced, so that, by sliding the strip in the guideway through this distance, one series of characters can be moved out of registry with said holes, and the other series of characters moved into registry therewith, the ends of the strip being alternately in registry with an end of the guideway.

The following is the mode of use of our improved attachment: Supposing that the device is to be used for converting a message into cipher, the strips are all moved to the same position, as, for instance, to the right, and those finger pieces 46 are successively depressed of which the characters 41 correspond with the characters in the original message. Characters will then be printed by the typewriting machine, which differ from those of the original message. Instead of the letter "S", for instance, in the original message, there would appear the letter "V", since the letter "S" corresponds to a particular key 46, the foot of which rests upon the key of the typewriting machine corresponding to the letter "V", and in like manner for the remaining letters. To decipher the message, the receiver uses a typewriting machine provided with similar code strips but located in the other position from that of sending. He then writes the message on the typewriting machine by depressing the supplementary finger pieces 46 corresponding to the characters of the message and it will be found that the cipher message is translated back to the original message and so printed, the letter "V" being in such a position upon a code strip, that, when said code strip is moved to the other position from that of sending, and the key 46 corresponding to said letter "V" is depressed, that key of the typewriting machine which writes the letter "S" will be depressed, and so on for the remaining characters. The same result could be obtained by having two separate strips, a sending strip and a receiving strip. In that case the characters of the sending strip would be arranged in a fortuitous or any desired manner, but the locations of those on the receiving strip would be determined from the locations of the characters on the sending strip and those of the keys of the typewriting machine. But by placing the two series of characters, sending and receiving, on the same strip, and arranging them alternately, the series of characters used for sending is changed to that used for receiving by merely sliding each strip through the distance of the spacing between the succeeding characters. It will be evident that the strips may be used in either of two positions for sending, but in either case they will be used in the other position for receiving. The code strips may be varied by

detaching therefrom the blocks 39 containing characters, and replacing them in the strips in other positions. For this purpose each strip is formed through its rear side with a series of small holes 53 at the centers of the backs of the recesses 38, which holes permit a suitable instrument to be applied to the backs of the blocks 39 to push them out of the recesses.

We claim:—

1. A cryptographic attachment for a typewriting machine, comprising a frame, provided with means whereby it may be supported over the typewriter keys, and having rows of vertical guideways, and horizontal slideways for removable code strips, cipher keys, each having a finger piece, a foot for supporting the cipher key upon a typewriter key and a stem slidable in one of the guideways, and removable code strips in said slideways, each strip having, in register with adjacent cipher keys, characters which differ irregularly from those of the respective typewriter keys supporting said cipher keys.

2. A cryptographic attachment for a typewriting machine, comprising a frame, provided with means whereby it may be supported over the typewriter keys, and having rows of vertical guideways, and horizontal slideways for removable code strips, cipher keys, each having a finger piece, a foot for supporting the cipher key upon a typewriter key and a stem slidable in one of the guideways, and removable code strips in said slideways, each strip having, in register with adjacent cipher keys, interchangeable characters which differ irregularly from those of the respective typewriter keys supporting said cipher keys.

3. A cryptographic attachment for a typewriting machine, comprising a frame, provided with means whereby it may be supported over the typewriter keys, and having rows of vertical guideways, and horizontal slideways for removable code strips, cipher keys, each having a finger piece, a foot for supporting the cipher key upon a typewriter key and a stem slidable in one of the guideways, and removable code strips in said slideways, each strip having two series of characters, either of which may be moved into register with adjacent cipher keys, said registering characters differing irregularly from those of the respective typewriter keys supporting said cipher keys.

In testimony whereof we have hereunto set our hands in the presence of two subscribing witnesses.

EDWARD H. HEBERN.
FRED HOFFMAN.

Witnesses:
FRANCIS M. WRIGHT,
D. B. RICHARDS.