E. H. HEBERN & F. HOFFMAN.
CRYPTOGRAPHIC ATTACHMENT FOR TYPE WRITING MACHINES.
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1,123,738.

Fig. 1.

Fig. 2.

Fig. 3.

WITNESSES:

INVENTORS
Edward H. Heben
Fred Hoffman

BY
Francis F. Wright.
ATTORNEY

Y P U E R M S M E A
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, 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 which will permit the use of codes very small and compact in size, so as to be easily carried on the person when traveling, and thus maintained in perfect secrecy, and which codes can be used in conjunction with any such attachment, so that the attachment itself need not be transported with the person so traveling.

In the accompanying drawing, Figure 1 is a perspective view of a portion of a typewriter machine equipped with the improved attachment; Fig. 2 is a transverse section thereof; Fig. 3 is a perspective view of a slide piece detached; Fig. 4 is a similar view of a removable code strip; Fig. 5 is a similar view of a letter block detached.

Referring to the drawing, 1 indicates a typewriter machine, having end bars 2. Upon said end bars rest plates 3, having upward extensions 4, bent outward at the upper portion, as shown at 5, to form convenient lifting means. Through vertical slots 6 in said extensions pass screws 7, the inner ends of which screw into depending portions 8 of longitudinal bars 9 thereof, through which pass upwardly two screws 11 screwed into upper and lower longitudinal channel plates 12 and 13. Said upper channel plate 12 and also an intermediate channel plate 14, have formed integral therewith on their front sides depending vertical members 15, 16, the vertical member 15 being secured by screws to the rear edge of the intermediate channel plate 14, and the vertical member 16 being similarly secured to the rear edge of the lower channel plate 13. Covering the channel plates are thin strips 18 of celluloid or other transparent material, extending the full length of the channel plate, and serving to protect said channel from the entrance of dust. Covering the strips 18, in said channel plates are cover plates 19, 20, 21, the lowermost cover plate 21 being bent downwardly at its front edge and being there secured by screws to the front edge of the channel plate 13. The upper and intermediate cover plates 19, 20, are also bent downwardly at their front portions and lie close to the vertical members 15, 16 of the upper and intermediate channel plates 12, 14, and said front portions are formed with vertical slots 22, registering with vertically extending depressions or side ways 23 in said vertical members 15, 16. The depending portions of the cover plates 19, 20 are secured to said vertical members 15, 16, by screws passing through said vertically extending portion of the upper cover plate and into the rear edge of the upper channel plate 12. The channels in each channel plate thus form, with the adjacent portions of the celluloid strips 18, guide ways 26, in which can slide code strips 27, made of any suitable material, preferably fiber as being compressible. Each code strip has a longitudinal series of holes or recesses 28, and, closely fitting in said holes are removable letter blocks 29, preferably of different color from the code 30 strip and having marked thereon characters 31, such as letters or numbers. These letter blocks, when placed in said recesses, are securely held therein by reason of the compressibility of the strips. The characters 31 are adapted to be seen through suitably shaped holes 32 formed on the corresponding cover plate.

33 indicates slide pieces which can slide vertically in the vertical slides 23, and are retained therein because the vertical slots 22 are narrower than the vertical slide-
the same character in the other series. That is to say, if the letter 4 in the typewriter keys corresponds to, or is translatable by, the letter "p" on the code strips, then also the letter 4 on the code strips corresponds to, and is translatable by, the letter "p" on the typewriter keys.

The various code strips are generally made with four rows of keys, of which the uppermost contains the keys for the numerals 1, 2, 3, 4, and the keys of each column are divided into different lower rows. These lower rows ares divided into three series, each series containing one or more characters in each column, and the characters in each series containing the keys for the larger part of the alphabet. We provide means for converting into spaces only the characters of these lower rows. It will be seen that the uppermost code strip, which is immediately above the uppermost row of keys of the typewriter machine, is used as an indicator for the operation of the keys of the attachment to depress the second row of keys of the typewriter machine. In the interior, the second or intermediate code strip is used for operating keys of the attachment, which depress the third row of keys of the typewriter machine; and the third code strip is employed as an indicator for depresses the fourth row of keys of the typewriter machine. But we avoid the expense of any of the size of the attachment by providing for the third code strip, the character having the attachment, such as are used by the two code strips. Having this additional row of keys of the typewriter machine, and instead of the operator depressing both of the fourth row of keys of the typewriter machine, depressing, however, no further than to characters imprinted on said typewriter keys, but depressing said keys corresponding to the characters immediately behind and above them of the third row of letters, with uniform relative to the other rows of said letter rows.

1. A key or row code strip having a longitudinal series of uniformly spaced recesses, and letter blocks of a shape to fit same in said recesses and having imprinted theron characters, said code strip and letter blocks being formed of materials adapted to receive but imperably retain the letter blocks in said recesses by elastic pressure between the blocks and strips.

2. Means for translating into and from cipher, comprising a device having thereon a series of original characters and a device having thereon a series of cipher characters in relative locations corresponding to those of the original characters each character, in wether or not of the two series it is included, corresponding to, or being translatable by, the same character in the other series.

3. The combination of three rows of typewriter keys, those rows of characters, the firm and second of said letter rows being re-
respectively immediately above the second and third of the former rows, and two rows only of finger pieces, respectively immediately above the first two rows of characters, and five operatively connected respectively with the typewriter keys of the second and third rows.

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.