

No. 630,847.

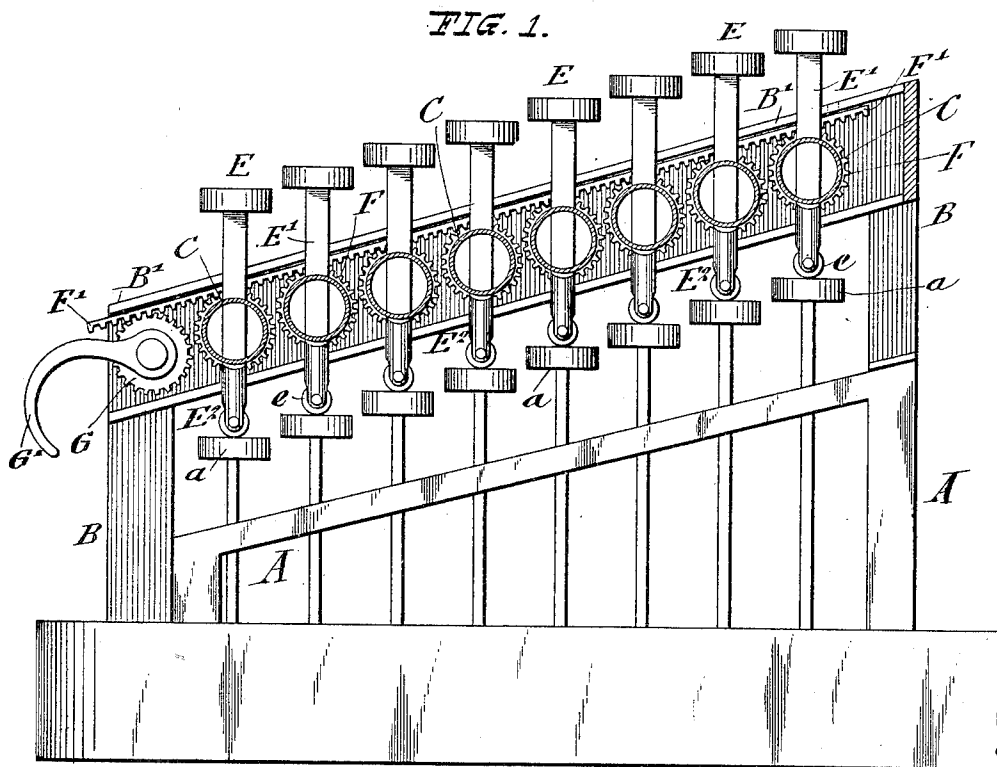
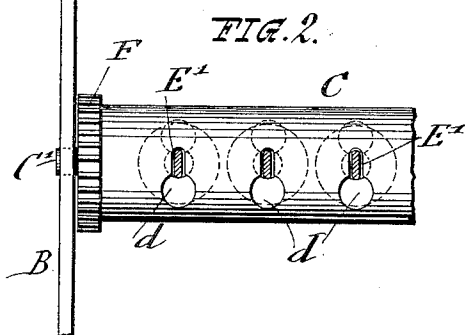
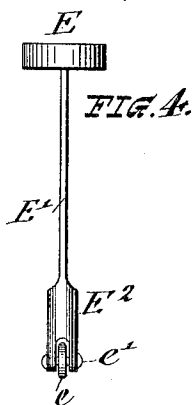
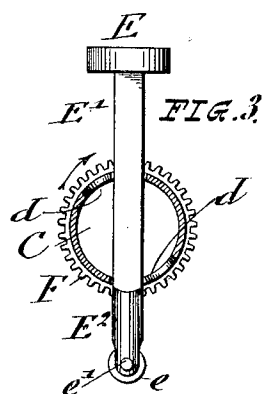
Patented Aug. 15. 1899.

E. A. BOFINGER.  
TYPE WRITER CIPHOGRAPH.

(Application filed July 23, 1898.)

(No Model.)

2 Sheets—Sheet 1.



WITNESSES:

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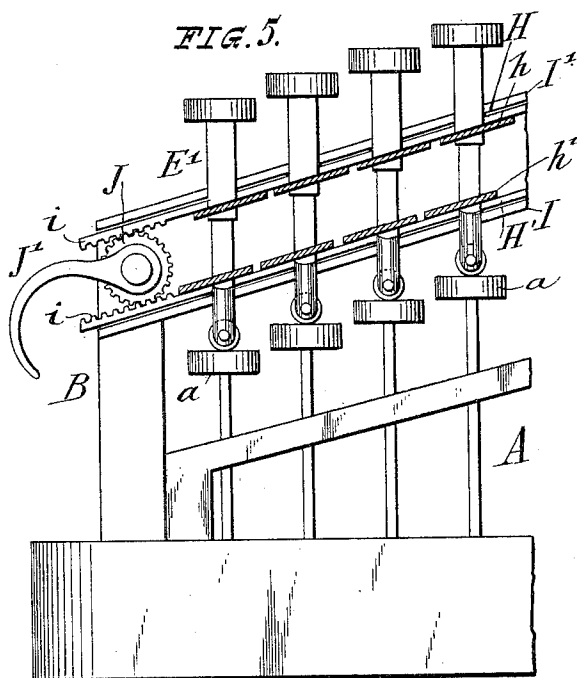
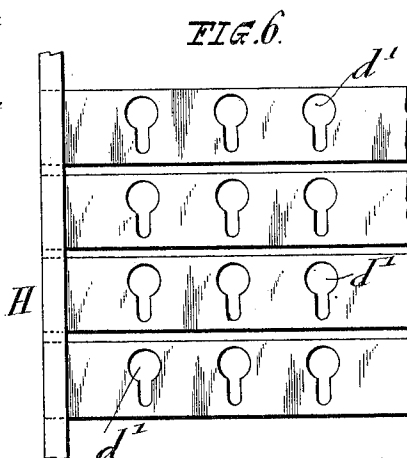
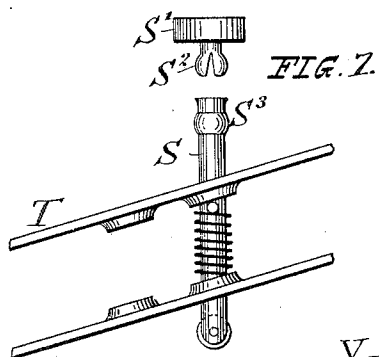
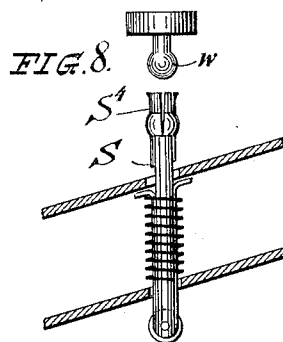
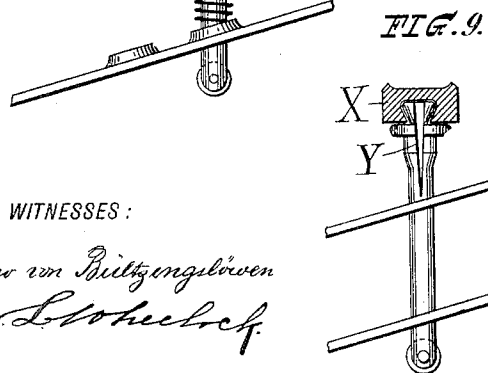
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2 Sheets—Sheet 2.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

EUGEN A. BOFINGER, OF NEW YORK, N. Y.

## TYPE-WRITER CIPHOGRAPH.

SPECIFICATION forming part of Letters Patent No. 630,847, dated August 15, 1899.

Application filed July 23, 1898. Serial No. 686,693. (No model.)

*To all whom it may concern:*

Be it known that I, EUGEN A. BOFINGER, a citizen of the United States, residing at New York, borough of Manhattan, and State of New York, have invented certain new and useful Improvements in Type-Writer Ciphographs, of which the following is a specification.

This invention relates to a ciphograph for type-writers or key-operated instruments, and which can be placed over the keyboard of such machines as the Remington type-writer and the like, whereby messages in the ordinary language may be written in cipher by the operator of the machine, which cipher message or communication can be retranslated into the original language or text on another type-writer in possession of the receiver.

The object of the present invention is to provide the attachment with interchangeable keys, so that each transmitter may have his or her own individual cipher arrangement at pleasure.

The invention consists of a ciphograph attachment for key-operated instruments, which comprises a suitable frame and interchangeable keys or finger-pieces suitably mounted or supported in said frame so that the keys or finger-pieces can be removed and any combination or different arrangement of the same effected, as desired.

The invention also consists of certain other features of construction and parts to be hereinafter described and then particularly claimed.

In the accompanying drawings, Figure 1 is a sectional side view of my improved ciphograph applied to the keyboard of a type-writer. Fig. 2 is a broken plan view, partly in section, showing one of the oscillatory cylinders of the main form of the invention. Fig. 3 is a transverse section through one of the cylinders, showing an auxiliary key or finger-piece passing through the same. Fig. 4 is a side elevation of one of the keys or finger-pieces. Fig. 5 is a broken detail section of a modification of the ciphograph applied to the keyboard of a type-writing machine. Fig. 6 is a broken plan view of said modification. Fig. 7 is another modification showing an arrangement in which the key is removable from its shank, and Figs. 8 and 9 are other modifications of somewhat similar arrangements.

Referring to the drawings, A indicates the keyboard of a suitable type-writing machine, provided with ordinary keys *a*.

B indicates the frame of the ciphograph attachment, which is applied over the keyboard of a type-writing machine and which is constructed to support a series of auxiliary keys or finger-pieces, which may be arranged to act on the keys of the type-writing machine.

In Figs. 1 to 4, inclusive, there is arranged a number of cylindrical key-supports C, which are provided at each end with trunnions C', turning in suitable bearings of the frame B. These key-supports correspond in number with the number of transverse rows of keys of the type-writing machine and are adapted to be held in the position to which they are oscillated by means of a suitable adjusting mechanism, to be referred to hereinafter.

At diametrically opposite points of the cylindrical key-supports C the same are provided with key-holes *d*, said key-holes being so arranged as that the enlarged portions thereof are diametrically opposite, while the narrower portions thereof are also diametrically opposite. These key-holes *d* are formed at a distance apart corresponding to the distance apart of the keys over which the cylindrical key-support C is arranged. In the narrower portions of the key-holes *d* are guided the thin shanks E' of the finger-pieces or auxiliary keys E. The lower portion of each of the shanks E' is enlarged at E<sup>2</sup> and carries an antifriction-roller *e*, which is journaled on a pin *e'*. When the cylindrical key-supports are in the position shown in Fig. 3, so that the narrower portions of the key-holes will be arranged vertically in line with each other, the auxiliary keys or finger-pieces can be pushed down directly upon the keys of the type-writing machine over which they are arranged. By imparting a partial rotation to the cylindrical key-supports in the direction of the arrow shown in Fig. 3 the keys or finger-pieces of the oscillated support can be detached, inasmuch as the enlarged lower ends E<sup>2</sup> of the shanks can be drawn up through the enlargements of the key-holes.

It is evident that when the cylindrical key-supports are rotated the keys or finger-pieces, with their shanks, remain in substantially normal position and that the keys *a* of the

key-operated instrument would interfere with the removal of the auxiliary keys or finger-pieces and their shanks should it be attempted to remove the same without rotating the  
 5 key-supports, inasmuch as the lower ends of the shanks would come in contact with the next keys *a* to the rear or in contact with each other. Therefore it is necessary that the cylindrical key-supports be rotated so as to  
 10 avoid interference.

Provision for the simultaneous and corresponding adjustment of all of the key-supports is furnished by means of gear-wheels *F*, which are arranged at one end of each, and  
 15 these gear-wheels are intermeshed by a rack-bar *F'*, which is guided under the guide-rail *B'* of the frame of the ciphograph and is in turn engaged by a gear-wheel *G*, adapted to be turned by means of a hand-lever *G'* or  
 20 other suitable operating device. By slightly raising the hand-lever *G'* the rack-bar *F'* is pushed back, so that a partial rotation in the direction of arrow in Fig. 3 is given to all of the cylindrical key-supports, permitting all  
 25 of the keys or finger-pieces to be detached and any arrangement to be made, as desired. On adjusting the keys or finger-pieces according to the desired cipher the hand-lever *G'* is depressed and the ciphograph message can be  
 30 written out.

In the modified construction shown in Figs. 5 and 6 the shanks *E'* of the keys are flat, as in the main form of the invention, and are guided through transverse key-holes *d'*,  
 35 formed in plates or key-supports *h h'*, which are respectively attached to the frames *H H'*, which are guided along suitable ways *I I'* of the frame *B* and are provided with teeth *i*, that are engaged by a gear-wheel *J*, mounted  
 40 on frame *B* and operated by a hand-lever *J'*, the arrangement being such that when the hand-lever is oscillated the frames *H H'* will be reciprocated in opposite directions. As in the main form of the invention, the key-  
 45 holes in the upper frame *H* are arranged oppositely to the lower key-holes in the frame *H'*, so that when the frames are moved oppositely the narrower portions of the key-holes will be vertically in line and when the frames  
 50 are moved toward each other the enlargements of the key-holes will be in line, and the auxiliary keys or finger-pieces can be detached similarly to the main form of the invention.

In the modification shown in Fig. 7 the shank *S* of the auxiliary key or finger-piece is spring-actuated and is guided through suitable guide-openings in a key-support *T*. The head or finger-piece *S'* of the shank *S* is  
 60 provided with a split spring *S<sup>2</sup>*, which is adapted to be inserted into the socketed upper end *S<sup>3</sup>* of the shank *S*, so that the said head or finger-piece can be detached.

In Fig. 8 a modification on a similar principle is shown, in which, however, the shank  
 65 *S* is provided with a spring-socket *S<sup>4</sup>*, in which

an enlargement *w* on the key-head or finger-piece is inserted.

In Fig. 9 the key-head or finger-piece *X* is provided with a socket, which is undercut  
 70 and which receives a split spring-head *Y*, formed on the shank of the key.

In the various forms of the invention it is evident that any alternative form of cipher can be set up on the ciphograph by simply removing the finger-pieces or auxiliary keys  
 75 and rearranging the same. It is evident that various other forms of mechanism for supporting the interchangeable keys or finger-pieces may be resorted to without departing  
 80 from the spirit and scope of the invention.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In a ciphograph, the combination, with a  
 85 suitable frame adapted to be supported on the keyboard of key-operated instruments, of interchangeable auxiliary keys or finger-pieces mounted on said frame and adapted to be depressed upon the keys of the said instruments, suitably-guided shanks, on which  
 90 said keys or finger-pieces are arranged and means for detachably connecting said keys or finger-pieces with their support, substantially as set forth.

2. In a ciphograph, the combination, with a  
 suitable frame adapted to be supported on the keyboard of key-operated instruments, of auxiliary keys or finger-pieces and movable key-supports fixed to said frame and  
 100 from which the said keys or finger-pieces are detachable, said key-supports being provided with suitable means for guiding the auxiliary keys or finger-pieces, substantially  
 105 as set forth.

3. The combination, with a suitable frame adapted to be supported on the keyboard of key-operated instruments of oscillatory key-supports journaled in said frame and provided with suitable guide-holes, auxiliary  
 110 keys or finger-pieces, the shanks of which are guided through said guide-holes and are adapted to be detachably connected with said key-supports, and means for oscillating said key-supports, substantially as set forth.

4. The combination, with a suitable frame adapted to be mounted on the keyboard of key-operated instruments, of oscillatory key-supports journaled in said frame and provided at one end with gear-wheels, a reciprocating rack engaging said gear-wheels, means  
 120 for operating said rack, and interchangeable keys or finger-pieces, the shanks of which are guided through suitable openings in said key-supports, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

EUGEN A. BOFINGER.

Witnesses:

GEO. L. WHEELLOCK,  
 C. E. GAST.